SyncBotic

SyncBot Robot Controller

Based on 11th Gen. Intel® Core™ Processor (formerly Tiger Lake)

Features

- 11th Gen. Intel® Core™ Processor (formerly Tiger Lake)
- Max. up to 64G DDR4 3200MHz dual channel memory, non-ECC type
- Support M.2 M key PCIe Gen4 x4 NVMe SSD, max. up to 2TB capacity
- One M.2 E key for Wi-Fi/BT module card
- One mini PCIe slot for PEAK CANbus module card
- Four-channel 1pps + GPS data for LIDAR, Xsens and another robot sensor
- Comprehensive interface of Ethernet, USB, RS-232/485, extend power output, GPIO
- Integrated 2/3D LIDAR SLAM script *Note 1
- Build-in BMI160 6-axis IMU
- Operating temp range is from 0˚C to 50˚C

*Note 1, only support Velodyne and Ouster 3D LIDAR.

Introduction

The SyncBot robot controller is based on high-speed FPGA to do the time synchronization function and integrated this module on 11th Gen. Intel® Core™ Processor (formerly Tiger Lake), provide 4-channel PPS and time data output for robot sensor to improve sensor fusion capability, support outdoor and indoor time synchronization feature, avoid moving and stationary obstacles during cleaning, detection etc.

HYPER-TECH Systems
14 Odem ST. P.O.B. 7042 Petach Tikva 4917001, ISRAEL | Office: +972-3-924-3352
Fax: +972-3-9243385 | sales@hypertech.co.il | www.hypertech.co.il

Specification

Model Name	SBC-T800 series
System Platform	
Processor	Intel® 11th Generation Core™ i7/i5/i3/Celeron SoC i7-1185G7E (4C, 1.7GHz, up to 4.4GHz, TDP-up 28W) i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W) Celeron® 6305E (2C, 1.80GHz,TDP 15W)
Storage	M.2 M Key slot, up to 2TB NVMe SSD
Memory	Max. up to 64G DDR4 3200MHz, non-ECC type
Physical Characteristics	
Dimension (mm)	175 x 150 x 72 mm (6.889 x 5.9 x 2.834 inch)
Weight (g)	2 kg
Front Panel interface	
HDMI	1x HDMI 2.0, support 3840 x 2160 @ 30Hz)
Ethernet Port	3x 10/100/1GBase-T(X) Ethernet port
USB port	4x USB 3.0 Gen1
Multi-I/O	8-bit DIO, two-channel CAN interface
Rear Panel Interface	
SyncOut 1/2	4x 1pps + time date output
DB-9 Connector	2x RS232/485
Wi-Fi antenna hole	2x FAKRA Z code for Wi-Fi antenna
Ethernet port	1x Gigabit Ethernet port
Side Panel Interface	
DB-9 Connector	2x CAN-FD (*default don't install this module, support IPEH-004046) 1x PM&GPIO interface (*Including 1x UART, 2x PWM output, Power ON/OFF, 1x System ready signal)
GPS antenna hole	1x FAKRA C code for GPS antenna
Internal Slot Interface	
M.2 slot	1x M.2 2230 E key for wifi module card 1x M.2 2280 M key for NVMe SSD
Mini PCIe	1x Mini PCIe slot, 3052 for PEAK CANbus 1x Mini PCIe slot, 3026 for GPS module

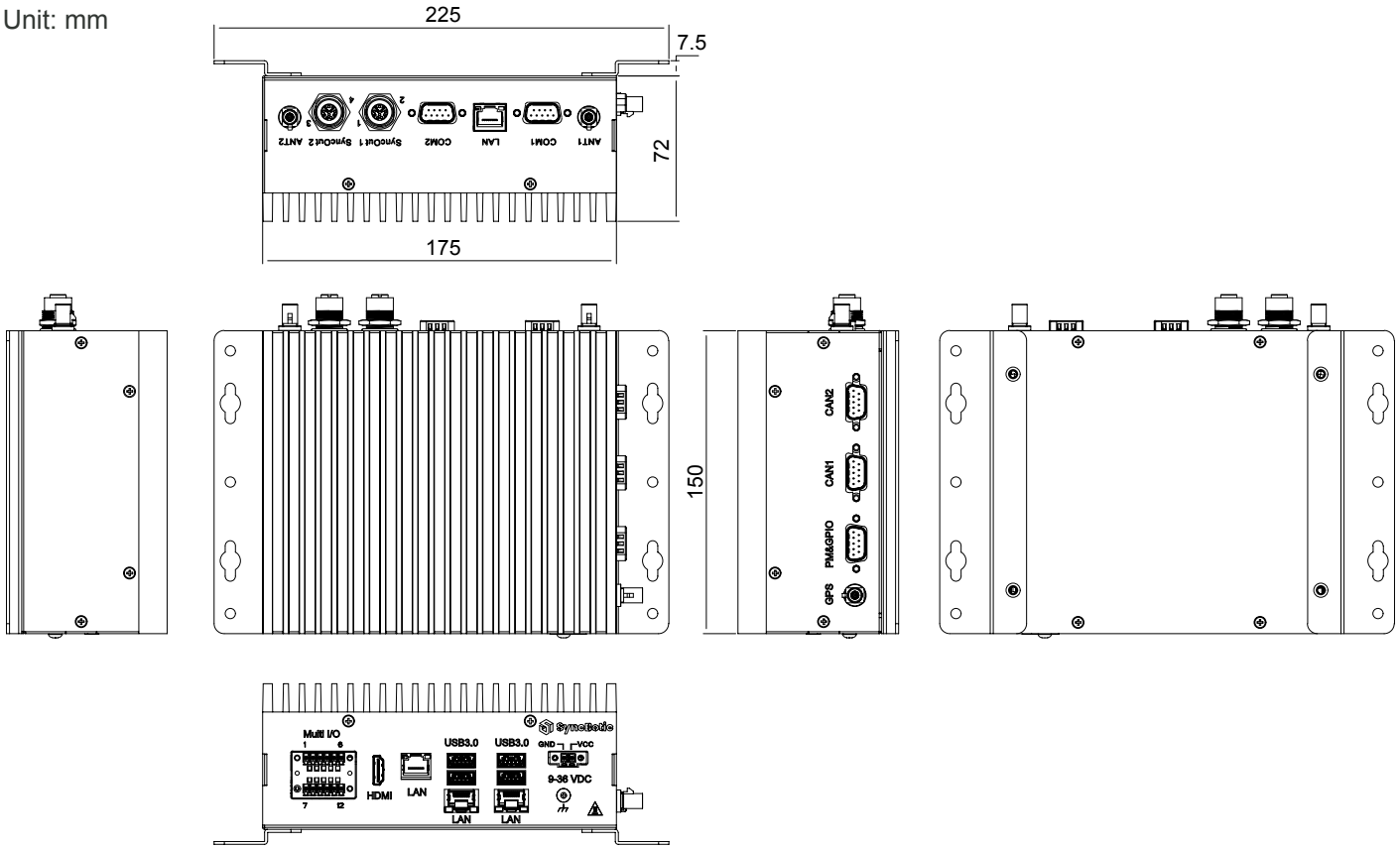
Power Requirements	
Power Input	9-36VDC ± 5%
Power Consumption	60W full loading
Power Mode	Support system auto-power on
Environmental	
Operating Temperature	0˚C to 50˚C with 0.6 air flow
Operating Humidity	Approx. 95% @40 (non-condensing)
Storage Temperature	-40 to 85
Vibration	IEC 60068-2-64: 5Grms, 5-500Hz, 3 axes
Shock	IOperating: 30G, half sine, 11ms duration
EMI	CE & FCC class A
Software Support	
Operation System	Ubuntu 18.04/20.04
ROS framework	ROS 1/ROS 2
Warranty	2 years

GPS Specification

GPS / GNSS module Specification	
Received Type	GPS, QZSS, SBAS, Galileo, GLONASS, BEIDOU
Protocol Support	NMEA 0183 V2.3 and V4.x, GGA, GLL, GSA, GSV, RMC, VTG, TXT
GPS module	72-channel u-blox M8 engine
Time Pulse Signal Accuracy	RMS: 30 ns (GPS & GLONASS) 99%: 60 ns (GPS & GLONASS)
Time to First Fix	Autonomous (All at -130dBm) Hot start: 1 sec (GPS & GLONASS) Cold start: 26sec (GPS & GLONASS)
Sensitivity (Autonomous)	Acquisition: -148dBm (GPS & GLONASS) Tracking: -167dBm (GPS & GLONASS)
Navigation Update rate	Max. 10Hz Default: 1Hz
Max. Altitude	50,000 m
Max. Velocity	500 m/s
Module Card type	Support half mini card 3026 size
Communication interface	Only support UART/TTL, TXD/RXD

Dimensions

Unit: mm



Ordering Information

Model Name	Description
SBC-T870	Intel® Core™ i7-1185G7E, 32G DDR4, 1TB SSD
SBC-T850	Intel® Core™ i5-1145G7E, 16G DDR4, 512G SSD
SBC-T830	Intel® Core™ i3-1115G4E, 16G DDR4, 256G SSD

Packing List

- SBC-T800 series robot controller x1
- Wall mount kit x2
- FAKRA Z Jack to SMA cable x2 (for wifi antenna)
- FAKRA C code to SMA cable x1 (for GPS antenna)

Optional Accessory

- PCAN miniPCIe module, dual channel, IPEH-004046
- PCAN miniPCIe module, single channel, IPEH-004045
- 32G 3200MHz memory, SO-DIMM 260pin, -20 to 70
- 16G 3200MHz memory, SO-DIMM 260pin, -20 to 70

Ver.1.0 Last updated: 2022.4.20

Copyright © 2022 SyncBotic Inc., All right reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form by any means, without the written permission of SyncBotic Inc.. SyncBotic Inc. reserves the right to modify or discontinue any product or piece of literature at anytime without prior notice.

HYPER-TECH Systems
14 Odem ST. P.O.B. 7042 Petach Tikva 4917001, ISRAEL | Office: +972-3-924-3352
Fax: +972-3-9243385 | sales@hypertech.co.il | www.hypertech.co.il