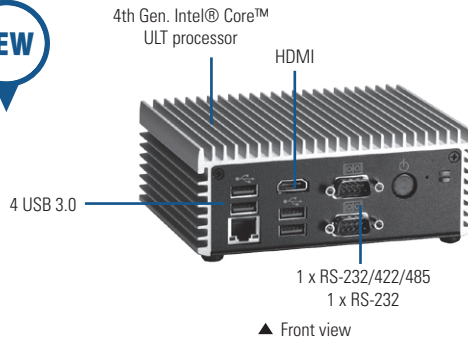


# eBOX560-880-FL-ECM



## Fanless EtherCAT Master Controller with Intel® Core™ i5 & Celeron® Processor

### Introduction

The eBOX560-880-FL-ECM EtherCAT controller is verified with IntervalZero EtherCAT Master middleware KingStar which is based on Acontis EtherCAT Master Stack and IntervalZero realtime extension RTX. With well-known Acontis EC-Master, it not only supports CoE, EoE, FoE and SoE enabling seamless integration with servo drives, but also offers Distributed Clocks function support for synchronization of all slave devices.

With IntervalZero Windows real-time extension RTX that through a separate real-time scheduler transforms Windows® 7 the general-purpose operating system into a fully functional RTOS that runs on multicore hardware, delivering deterministic time control to allow Master controller and Slave device communicating cycle time of 100/125µs, depends on servo motor.

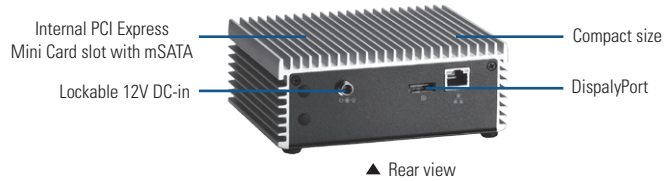
### Specifications

Standard Color	Silver-Black
Construction	Aluminum extrusion and heavy-duty steel, IP40
CPU	Intel® Celeron® 2980U / Core™ i5 4300U 1.6 GHz / Core™ i5 4300U 1.9 GHz Haswell ULT SoC onboard
System Memory	1 x 204-pin DDR3L-1600 SO-DIMM max. up to 8 GB
Chipset	Single Chip Design
BIOS	AMI
System I/O Outlet	1 x RS-232/422/485 1 x RS-232 1 x DisplayPort 1 x HDMI 1x EtherCAT port (Intel® i210) 1x GbE port (Intel® i218) 4 x USB 3.0 2 x SMA type connector opening for antenna 1 x VDC 12V power input connector 1 x ATX power switch 1 x Reset button
Watchdog Timer	255 levels, 1~255 sec.
Storage	1 x 2.5" SATA HDD drive bay 1 x mSATA
Expansion Interface	1 x Full-size PCI Express Mini Card slot (USB + PCI Express signal)
System Indicator	1 x green LED for system power-on 1 x orange LED for HDD active
Power Supply	Input AC 90-264V, AC 60W adapter with lock Output: DC 12V @ 5A
Operating Temperature	-20°C ~ +50°C (-4°F ~ +122°F) (with W.T. SSD)
Storage Temperature	-40°C ~ +80°C (-40°F ~ +176°F)
Humidity	10% ~ 90% , non-condensing

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Набережные Челны (8552)20-53-41

- Intel® Celeron® 2980U/Core™ i5 4300U Haswell ULT SoC
- High performance 204-pin DDR3L SO-DIMM max. up to 8 GB
- 1 EtherCAT port and 1 GbE LAN port
- Verified with IntervalZero EtherCAT solution KingStarI032
- Supports Acontis EtherCAT master stack
- Supports IntervalZero Windows real-time extension RTX2012
- EtherCAT communication cycle 100/125µs
- 1 RS-232/422/485 and 1 RS-232 port
- One 2.5" SATA HDD drive bay and mSATA interface
- Supports 1 PCI Express Mini Card slot and 4 USB 3.0 ports
- Supports DisplayPort and HDMI dual view



### Verified with software

#### Standard

Operating System	Windows Embedded Standard 7 32 bit
Windows Extension	IntervalZero Windows realtime extension RTX2012
Test Middleware	IntervalZero KingStarI0 32 bit
EtherCAT Master	Acontis EtherCAT Master Stack 32 bit
EtherCAT Configurator	IntervalZero EtherCAT Configurator

\*Specifications and certifications are based on options and may vary.

### Ordering Information

#### Standard

eBOX560-880-FL-ECM-2980U-US	Fanless embedded system with Intel® Celeron® 2980U Haswell ULT processor, HDMI/DisplayPort, 2 GbE LAN, 4 USB 3.0, 2 COM and PCIe Mini Card, 60W AC/DC adapter and US power cord
eBOX560-880-FL-ECM-2980U-EU	Fanless embedded system with Intel® Celeron® 2980U Haswell ULT processor, HDMI/DisplayPort, 2 GbE LAN, 4 USB 3.0, 2 COM, PCIe Mini Card, 60W AC/DC adapter and EU power cord
eBOX560-880-FL-ECM-4300U-US	Fanless embedded system with Intel® Core™ i5-4300U Haswell ULT processor, HDMI/DisplayPort, 2 GbE LAN, 4 USB 3.0, 2 COM, PCIe Mini Card, 60W AC/DC adapter and US power cord
eBOX560-880-FL-ECM-4300U-EU	Fanless embedded system with Intel® Core™ i5-4300U Haswell ULT processor, HDMI/DisplayPort, 2 GbE LAN, 4 USB 3.0, 2 COM, PCIe Mini Card, 60W AC/DC adapter and EU power cord

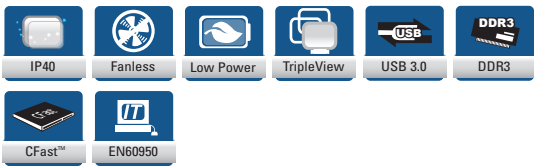
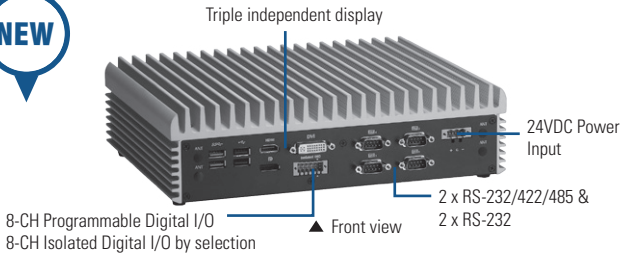
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Ярославль (4852)69-52-93

# eBOX671-885-FL-ECM

Fanless EtherCAT Master Controller  
with LGA1150 Socket 4th Generation Intel®  
Core™ i7/i5/i3 & Celeron® Processors



## Introduction

The eBOX671-885-FL-ECM EtherCAT controller is verified with IntervalZero EtherCAT Master middleware KingStar which is based on Acontis EtherCAT Master Stack and IntervalZero real-time extension RTX. With well-known Acontis EC-Master, it not only supports CoE, EoE, FoE and SoE enabling seamless integration with servo drives, but also offers Distributed Clocks function support for synchronization of all slave devices.

With IntervalZero Windows real-time extension RTX that through a separate real-time scheduler transforms Windows® 7 the general-purpose operating system into a fully functional RTOS that runs on multicore hardware, delivering deterministic time control to allow Master controller and Slave device communicating cycle time of 250 s.

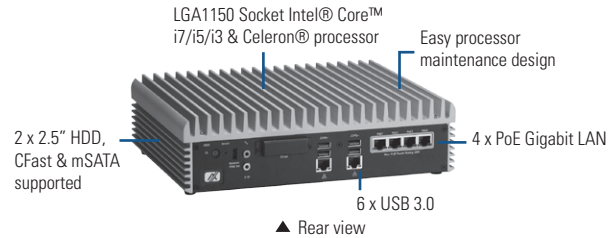
In a practice of robotic arm, IP Camera is widely used as eye to guide robotic arm to pick up object on conveyor. The eBOX671-885-FL-ECM with 4 GbE PoE is an ideal choice.

## Specifications

Standard Color	Silver-Black
Construction	Aluminum extrusion and heavy-duty steel, IP40
CPU	4th generation Intel® Core™ i7/i5/i3 & Celeron® processors with TDP max. up to 45W
System Memory	8 GB recommended
Chipset	Intel® Q87
BIOS	AMI
System I/O Outlet	1 x EtherCAT port (Intel® i210) 1 x GbE LAN port (Intel® i210) 4 x 10/100/1000Mbps Power over Ethernet, PoE - 4 ports full-load, IEEE802.3af Class 2 (7Watt) - 2 ports full-load, IEEE802.3af Class 3 (15.4Watt) - 1 ports full-load, IEEE802.3at Class 4 (30Watt) 2 x RS-232/422/485 & 2 x RS-232 8 channel programmable DI/DO (Default) 8 Isolated DI/DO (4 IN & 4 OUT) (Option) 6 x USB 3.0 2 x USB 2.0 1 x Audio (MIC_in/Line_out) 1 x DVI-I 1 x HDMI 1 x DisplayPort 1 x 24VDC Power input connector 1 x Power switch 1 x Reset switch 1 x Remote Power Switch 3 x Antenna opening

## Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3 & Celeron® (Haswell and Haswell Refresh) processors with Intel® Q87
- Fanless operation design with 4CH GbE PoE
- Two 2.5" SATA HDD drive bay, mSATA and CFast™ slot
- Two internal PCI Express Mini Card slots, 1 x SIM Card slot
- Supports HDMI, DVI-I and DisplayPort for triple independent display
- Supports RAID 0 & 1, Jumbo Frame (9.5K), WoL, PXE and Teaming



Watchdog Timer	255 levels, 1 ~ 255 sec.
Storage	2 x 2.5" SATA HDD bay, max. height 9.5 mm (RAID 0 & 1 supported) 1 x CFast™ (front access) 2 x mSATA
Expansion Interface	2 x Full-size PCI Express Mini Card slot (USB+PCIe signal) 1 x SIM Card slot
System Indicator	1 x blue LED for system power 1 x orange LED for HDD active
Power Supply	DC Input 24V
Operating Temperature	-20°C ~ +50°C (-4°F ~ +122°F) (with W.T. SSD or CFast™, CPU TDP 35W)
Storage Temperature	-40°C ~ +80°C (-40°F ~ +176°F)
Humidity	10% ~ 90%, non-condensing
Dimensions	280 mm (11.02") (W) x 210 mm (8.27") (D) x 76 mm (2.99") (H)
Weight (net/gross)	4.31 kg (9.5 lb)/ 3.2 kg (7.05 lb)
Certificate	CE

## Verified with Software

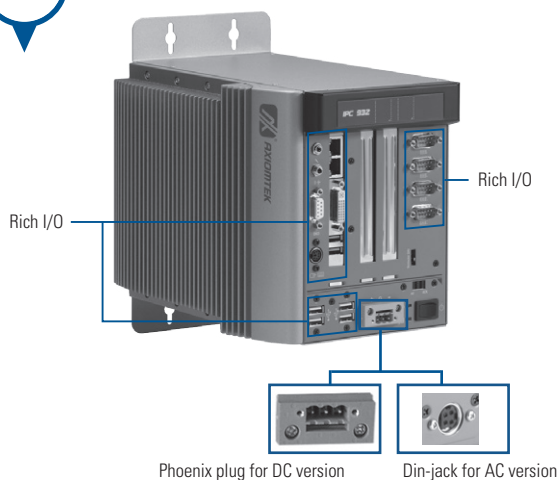
Operating System	Windows® Embedded Standard 7 32-bit
Windows Extension	IntervalZero Windows real-time extension RTX2012
Test Middleware	IntervalZero KingStarIO 32 bit
EtherCAT Master	Acontis EtherCAT Master stack 32 bit
EtherCAT Configurator	IntervalZero EtherCAT Configurator

## Ordering Information

Standard	
eBOX671-885-FL-ECM-DC	Fanless EtherCAT master controller embedded system with Intel® Core™ i7/i5/i3 & Celeron® processors, Intel® Q87, dual HDD, 4 PoE, 2 GbE LANs, 8 USB, audio, 4 COM, 8-CH TTL digital I/O and 24VDC

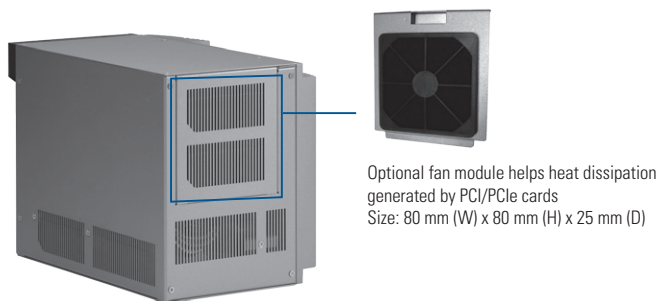
# IPC932-230-FL-ECM

2-slot Fanless EtherCAT Master Controller with 4th Generation Intel® Core™ i7/i5/i3 & Celeron® Processors (up to 3.3 GHz) , Intel® Q87 Chipset, PCIe and PCI Slots



## Features

- 4th generation Intel® Core™ i7/i5/i3 & Celeron® processors, up to 45W (Codename Haswell/Haswell Refresh)
- Intel® Q87 chipset
- Supports two expansion slots
- DC to DC power supply supports 10~30V
- Compact & front I/O design
- Rugged, up to -10°C ~ +50°C fanless operation with W.T. SSD or W.T. CFast™
- Supports Intel® AMT 9.0
- Supports two 2.5" SATA HDD
- Supports SATA 6Gbs with RAID 0,1
- Support IntervalZero Windows real-time extension RTX2012
- 1 EtherCAT port, 1 GbE LAN port
- Verified with IntervalZero EtherCAT solution KingStarI032
- EtherCAT communication cycle 100/125µs
- Supports Acontis EtherCAT master stack



▲ Rear view



## Specifications

Standard Color	Sliver
Construction	Aluminum extrusion heavy-duty cold-rolled steel, IP30
System Board	SHB230DGGA
Processor System	CPU Level 4th generation Intel® Core™ i7/i5/i3 & Celeron® processors up to 45W (Codename Haswell/Haswell Refresh)
	Max. Speed 3.3 GHz
	Front Side Bus N/A
	Chipset Intel® Q87
System Memory	2 x 204-pin DDR3-1333/1600 SO-DIMM, max. up to 16 GB
I/O Interface (Front)	ATX power on/off switch 1 x 2-pin connector output for remote on/off switch 2 x USB 3.0 4 x USB 2.0 2 x RS-232 (COM 3/4) 2 x RS-232/422/485 (COM 1/2) 2 x 10/100/1000Mbps Ethernet 1 x EtherCAT port 1 x GbE LAN port 1 x DVI-I 1 x DIO (Female DB9 Connector) (4 IN and 4 OUT) 1 x PS/2 keyboard/mouse 1 x Audio (MIC-in/Line-out) 1 x AT/ATX Mode switch

Expansion Interface	HAB100: 1 PCIe x1 & 1 PCIe x4
Storage	2 x 2.5" SATA HDD, 1 x CFast™ socket
System Indicators	1 x power on/off , 1 x HDD
Power Supply	DC ATX 150W: Input : 10~30VDC Output: +5V@11A, +3.3V@5A, +12V@9A, -12V@-150mA, 5Vsb@2A AC-DC power adapter: Input: 90~264VAC Output: 19V@7.89A
Operation Temperature	-10°C ~ +50°C (+14°F ~ +122°F) with W.T. HDD or W.T. SSD or W.T. CFast™
Storage Temperature	-20°C ~ +80°C (-4°F ~ +176°F)
Humidity	10% ~ 90%, non-condensing
Dimensions	159.9 mm (6.36") (W) x 251.8 mm (10.02") (D) x 185 mm (7.2") (H)
Weight (net/gross)	6.2 kg (13.67 lb)/7.2 kg (15.87 lb)
Certification	CE compliance

\*\*The maximum power rating for expansion slots at 50°C can not be exceeded the following values: The maximum loading of +3.3V /1A and +5V/5A and +12V /3A <60W

## Ordering Information

### PCIe Version

IPC932-230-FL-ECM-DC SYS w/HAB100 (PN: E26G932107)	2-slot fanless EtherCAT master controller embedded system with 4th generation Intel® Core™ i7/i5/i3 processor, PCIe slots and DC-in ATX 150W P/S
IPC932-230-FL-ECM-AC SYS w/HAB100 (PN: E26G932106)	2-slot fanless EtherCAT master controller embedded system with 4th generation Intel® Core™ i7/i5/i3 processor, PCIe slots, DC-in ATX 150W P/S and AC-DC 150W power adaptor and US power cord

\*Specifications and certifications are based on options and may vary.

## Power Protection

### AC Version

OVP (over voltage protection)
OTP (over temperature protection)
OPP (over power protection)
SCP (over circuit protection)

### DC Version

OVP (over voltage protection)
SCP (short circuit protection)
OCP (over current protection)

## Verified with Software

Operating System	Windows® Embedded Standard 7 32 bit
Windows Extension	IntervalZero Windows real-time extension RTX2012
Test Middleware	IntervalZero KingStarIO 32 bit
EtherCAT Master	Acontis EtherCAT Master stack 32 bit
EtherCAT Configurator	IntervalZero EtherCAT configurator

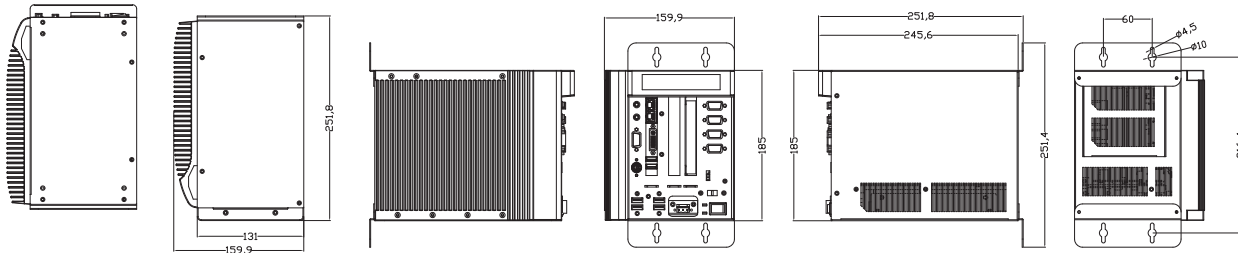
## Optional Items

DDR3 SO-DIMM: 2 GB, 4 GB, 8 GB  
 CFast™: 2 GB, 4 GB, 8 GB  
 2.5" SATA HDD: 320 GB, 500 GB  
 IPC932-230-FL Fan module kit (E26G932104)  
 Y-Cable for CRT and DVI 150 mm (594826A0010E)  
 6P PS/2 KB+Mouse cable (59381560000E)

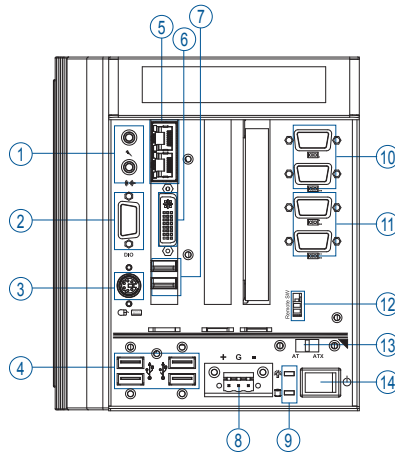
## Packing List

IPC932-230-FL Series Unit x 1  
 19V 150W Adapter (for AC Version)  
 Driver CD  
 Quick Manual  
 Wall Mount Bracket x 2  
 Screw pack x 1  
 Foot pad x 4  
 CPU Thermal Pad x 1  
 HDD Bracket x 2  
 HDD Mylar x 2  
 Terminal block x 1 (for DC version)  
 Remote power switch cable x 1

## Dimensions



## Front & Rear Metal Panel I/O Layout



1. Audio(MIC-in/Line-out)
2. Digital I/O
3. PS/2 keyboard/mouse
4. USB 2.0 x 4
5. Ethernet x 2
6. DVI-I
7. USB 3.0 x 2
8. Power connector (Din-Jack or Phoenix plug)
9. LED for Power and HDD
10. RS-232/422/485 (COM 1/2)
11. RS-232 (COM 3/4)
12. Remote power switch
13. ATX/AT Mode switch
14. ATX Power switch

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