



# Axiomtek CEM310 COM Type 10 Mini Module with Intel Atom x5 and x7 Processor

## Key Features:

- Intel® Atom® x5 and x7 processors (Apollo Lake)
- Onboard 4GB DDR3L memory (8GB optional)
- Max. up to 4 lanes of PCI Express
- 2 x SATA-600
- 2 x USB 3.0 and 8 x USB 2.0

## Description

The Axiomtek CEM310, a COM Express Type 10 Mini module, supports Intel® Atom® x5 and x7 processors (codename: Apollo Lake) in a board size of 84mm x 55mm. It has 8GB of DDR3L onboard memory and an optional 64GB eMMC memory. The Intel® Atom®-based COM Express Type 10 Mini module comes with a variety of I/O and expansion options including four PCIe x1 lanes, one Gigabit LAN port with Intel® i210IT Ethernet controller, two USB 3.0, eight USB 2.0, two SATA-600, four digital I/O channels, HD Codec audio, one DDI, one LVDS, one LPC, one SPI, two serial TX/RX and one I2C to meet customer requirements. Aside from the rich I/O options, the CEM310 has a wide voltage input range of 4.75V to 20V to meet the varying voltage input requirements for automotive or transportation applications. In addition, it supports an extended operating temperature range from -20°C to +70°C or optional -40°C to +85°C to ensure stable and reliable operation in harsh environments. The CEM310 supports watchdog timer, hardware monitoring functions, SMBus as well as smart battery (optional).

## Website Specification

CPU	<ul style="list-style-type: none"> <li>• Intel® Atom® x7-E3950 (2.0 GHz)</li> <li>• Intel® Atom® x5-E3940 (1.8 GHz)</li> <li>• Intel® Atom® x5-E3930 (1.8 GHz)</li> </ul>
Chipset	<ul style="list-style-type: none"> <li>• SoC integrated</li> </ul>
System Memory	<ul style="list-style-type: none"> <li>• 4GB DDR3L memory onboard, up to 8GB (optional)</li> </ul>
BIOS	<ul style="list-style-type: none"> <li>• AMI</li> </ul>
COM	<ul style="list-style-type: none"> <li>• 1 x LPC</li> <li>• 1 x SPI</li> <li>• 2 x TX/RX</li> </ul>
USB	<ul style="list-style-type: none"> <li>• 2 x USB 3.0</li> <li>• 8 x USB 2.0</li> </ul>
Ethernet	<ul style="list-style-type: none"> <li>• 1 x 10/100/1000 Mbps (Intel® i210-IT)</li> </ul>
Display	<ul style="list-style-type: none"> <li>• 1 x DDI (DisplayPort, HDMI, DVI)</li> <li>• 1 x LVDS; 18/24-bit single channel (eDP optional)</li> </ul>
GPIO	<ul style="list-style-type: none"> <li>• 4-CH in &amp; 4-CH out</li> </ul>
Audio	<ul style="list-style-type: none"> <li>• HD link interface to baseboard for Codec</li> </ul>
Storage	<ul style="list-style-type: none"> <li>• 2 x SATA-600</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• 4 x PCIe x1 (3 x1 while internal LAN is connected)</li> </ul>
Others	<ul style="list-style-type: none"> <li>• 1 x LPC</li> <li>• 1 x SPI</li> <li>• 1 x I2C</li> </ul>
Battery	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Power Input	<ul style="list-style-type: none"> <li>• ATX: +12V, +5VSB</li> <li>• AT: +12V</li> <li>• Wide range input: +4.75V to +20V</li> </ul>
Watchdog Timer	<ul style="list-style-type: none"> <li>• 65536 levels, 0 to 65535 sec.</li> </ul>
Hardware Monitoring	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
Operating Temperature	<ul style="list-style-type: none"> <li>• Industrial: -40°C to +85°C (-40°F to +185°F)</li> <li>• Standard: -20°C to +70°C (-4°F to +158°F)</li> </ul>
Relative Humidity	<ul style="list-style-type: none"> <li>• 10% to 95% relative humidity, non-condensing</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>• 3.5 Grms</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>• 84 x 55 mm</li> </ul>
Board Thickness	<ul style="list-style-type: none"> <li>• 2.0 mm</li> </ul>
Certifications	<ul style="list-style-type: none"> <li>• CE</li> </ul>

# CEM310

COM Express Type 10 Mini Module with Intel® Atom® x5 and x7 Processor

## Features

- Intel® Atom® x5 and x7 processors (Apollo Lake)
- Onboard 4GB DDR3L memory (8GB optional)
- Max. up to 4 lanes of PCI Express
- 2 SATA-600
- 2 USB 3.0 and 8 USB 2.0

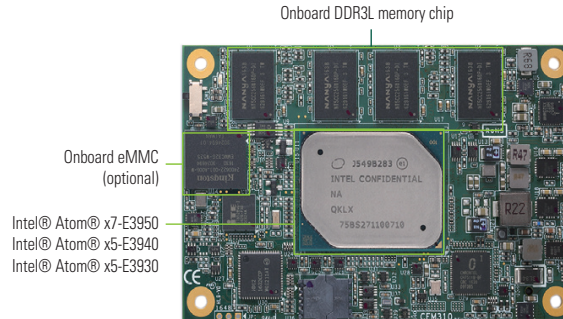


### Core System

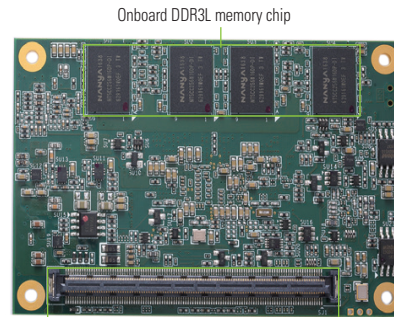
CPU	Intel® Atom® x7-E3950 (2.0 GHz) Intel® Atom® x5-E3940 (1.8 GHz) Intel® Atom® x5-E3930 (1.8 GHz)
System Memory	4GB DDR3L memory onboard, up to 8GB (optional)
Chipset	SoC integrated
BIOS	AMI UEFI BIOS (Legacy Free)
SSD	eMMC 5.0 up to 64GB (optional)
Watchdog Timer	65536 levels, 0 to 65535 sec.
Expansion Interface	4 x PCIe x1 (3 x1 while internal LAN is connected)
Battery Lithium	N/A
Power Input	ATX: +12V, +5VSB AT: +12V Wide range input: +4.75V to +20V
Dimensions	84 x 55 mm
Board Thickness	2.0 mm
Operating Temperature	Industrial: -40°C to +85°C (-40°F to +185°F) Standard: -20°C to +70°C (-4°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing
Vibration Endurance	3.5 Grms

### I/O

SATA	2 x SATA-600
Hardware Monitoring	Yes
Ethernet	1 x 10/100/1000 Mbps Ethernet with Intel® i210-IT; supports Wake-on-LAN, PXE Boot ROM
Audio	HD link interface to baseboard for Codec
USB	2 x USB 3.0 8 x USB 2.0
Serial	1 x LPC 1 x SPI 2 x TX/RX
TPM	N/A
SMBus	Yes
Others	1 x I <sup>2</sup> C
GPIO	4-CH in & 4-CH out
Smart Battery	Yes



Onboard eMMC (optional)  
Intel® Atom® x7-E3950  
Intel® Atom® x5-E3940  
Intel® Atom® x5-E3930



COM Express connector

▲ Rear view

### Packing List

Chipset	Intel® Gen 9 Graphics Engine Supports Gfx – DX12.0, OCL2.0, OGL 4.3
Display Interface	1 x DDI (DP, HDMI, DVI) 1 x LVDS; 18/24-bit single channel (eDP optional)

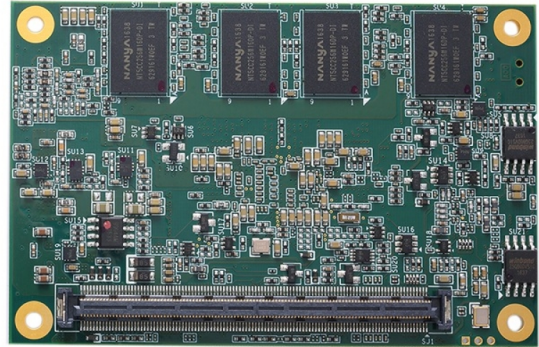
### Packing List

Quick installation guide

### Ordering Information

Standard	
CEM310PG-E3930+4GB (Ind) (P/N: E38D310100)	COM Express Type 10 Mini module with Intel® Atom® x5-E3930, DDI, LVDS, USB 3.0 and GbE LAN (Ind. Temp)
CEM310PG-E3940+4GB (Ind) (P/N: E38D310102)	COM Express Type 10 Mini module with Intel® Atom® x5-E3940, DDI, LVDS, USB 3.0 and GbE LAN (Ind. Temp)
CEM310PG-E3950+4GB (Ind) (P/N: E38D310103)	COM Express Type 10 Mini module with Intel® Atom® x7-E3950, DDI, LVDS, USB 3.0 and GbE LAN (Ind. temp)
CEM310PG-E3930+4GB (P/N: E38D310104)	COM Express Type 10 Mini module with Intel® Atom® x5-E3930, DDI/LVDS, USB 3.0 and GbE LAN
CEM310PG-E3940+4GB (P/N: E38D310105)	COM Express Type 10 Mini module with Intel® Atom® x5-E3940, DDI, LVDS, USB 3.0 and GbE LAN
CEM310PG-E3950+4GB (P/N: E38D310106)	COM Express Type 10 Mini module with Intel® Atom® x7-E3950, DDI, LVDS, USB 3.0 and GbE LAN
Optional	
7128D310000E	CEM310 heatspreader
5078D840200E	Heatsink with fan (need to be with 7128D310000E)
CEB94017 (P/N: E394017101)	COM Express Type 10 development baseboard

## Images



## Ordering Information

**CEM310PG-E3930+4GB (P/N-E38D310100)**

COM Express Type 10 module with Intel® Atom® x5-E3930, DDI/LVDS, USB 3.0 and GbE LAN (Ind. Temp)

**CEM310PG-E3940+4GB (P/N-E38D310102)**

COM Express Type 10 module with Intel® Atom® x5-E3940, DDI/LVDS, USB 3.0 and GbE LAN (Ind. Temp)

**CEM310PG-E3950+4GB (P/N-E38D310103)**

COM Express Type 10 module with Intel® Atom® x7-E3950, DDI/LVDS, USB 3.0 and GbE LAN (Ind. temp)

**CEM310PG-E3930+4GB (P/N-E38D310104)**

COM Express Type 10 module with Intel® Atom® x5-E3930, DDI/LVDS, USB 3.0 and GbE LAN

**CEM310PG-E3940+4GB (P/N-E38D310105)**

COM Express Type 10 module with Intel® Atom® x5-E3940, DDI/LVDS, USB 3.0 and GbE LAN

**CEM310PG-E3950+4GB (P/N-E38D310106)**

COM Express Type 10 module with Intel® Atom® x7-E3950, DDI/LVDS, USB 3.0 and GbE LAN

**7128D310000E**

CEM310 heatspreader

**5078D840200E**

Heatsink with fan (need to be with 7128D310000E)

**CEB94017 (P/N-E394017101)**

COM Express Type 10 development baseboard

## Assured Systems

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