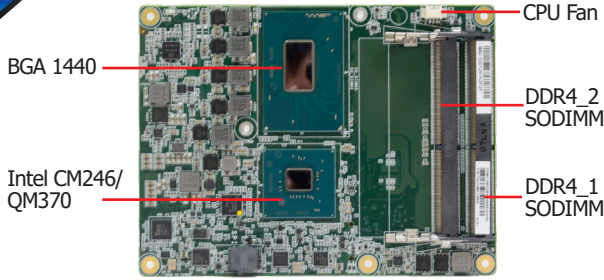
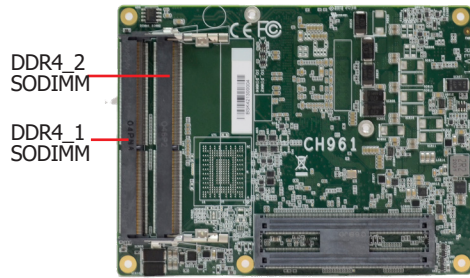


# CH961-CM246/QM370

**CM246**  
**QM370**

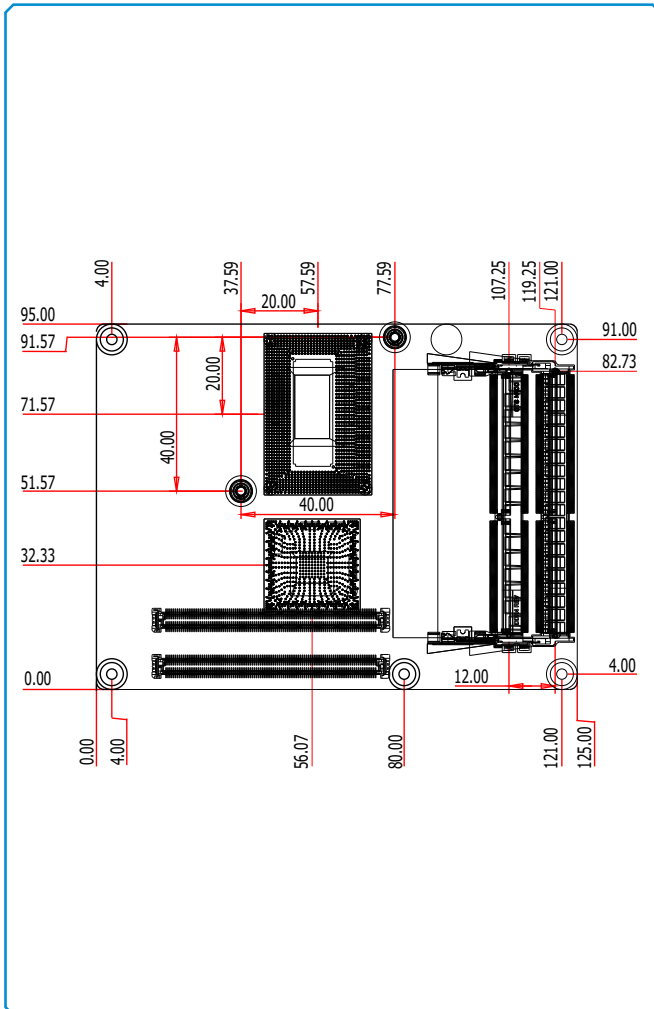


Top View



Bottom View

## Mechanical Drawing



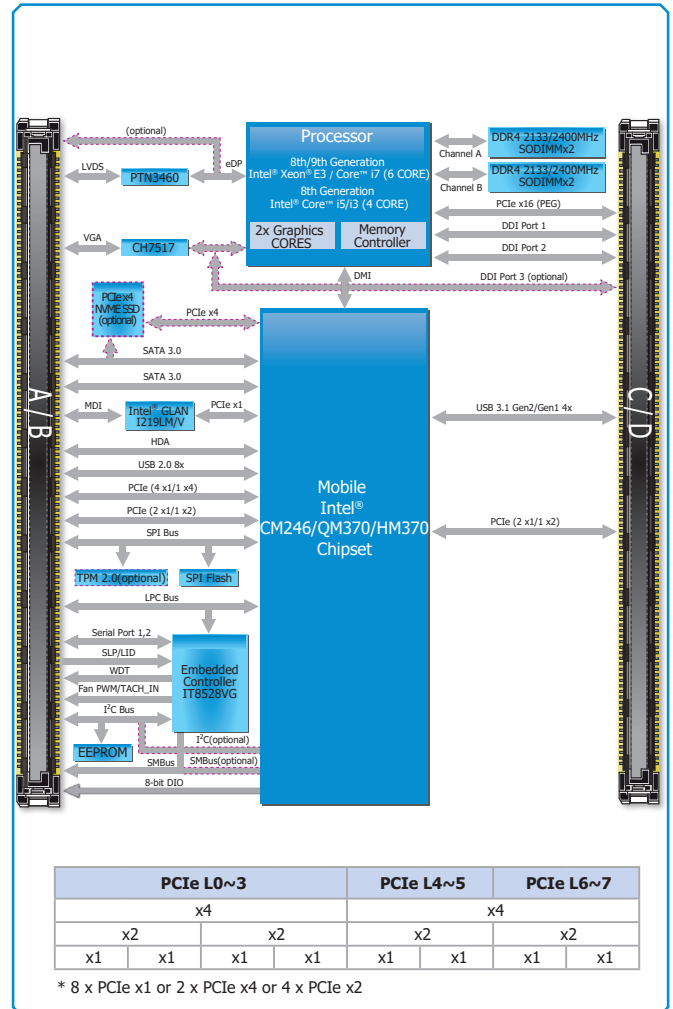
## Features

- Dual channel DDR4 2666MHz SODIMM up to 96GB
- Four display ports: VGA\*/DDI + LVDS\*/eDP + 2 DDI Supports three independent displays
- DP++ resolution supports up to 4096x2304 @ 60Hz
- Multiple expansion: 1 PCIe x16, 8 PCIe x1
- Rich I/O: 1 Intel GbE, 4 USB 3.1, 8 USB 2.0

\* Populated by default



## Block Diagram



## Specifications

<b>SYSTEM</b>	<b>Processor</b>	8th/9th Generation Intel® Core™ Processors, BGA 1440 Intel® Core™ i7-8850H, 6 Cores, 12M Cache, 2.6GHz (4.3GHz), 45W (CM246/QM370) Intel® Core™ i5-8400H, 4 Cores, 8M Cache, 2.5GHz (4.2GHz), 45W (CM246/QM370/HM370) Intel® Core™ i3-8100H, 4 Cores, 6M Cache, 3.0GHz, 45W (QM370/HM370) Intel® Core™ i3-9100HL, 4 Cores, 6M Cache, 1.6GHz (2.9GHz), 25W (HM370) Intel® Core™ i7-9850HL, 6 Cores, 9M Cache, 1.9GHz (4.1GHz), 25W (QM370) Intel® Core™ i7-9850HE, 6 Cores, 9M Cache, 2.7GHz (4.4GHz), 45W (QM370) Intel® Xeon® E-2176M, 6 Cores, 12M Cache, 2.7GHz (4.4GHz), 45W (CM246/QM370) Intel® Xeon® E-2276ML, 6 Cores, 12M Cache, 2.0GHz (4.2GHz), 25W (CM246) Intel® Xeon® E-2276ME, 6 Cores, 12M Cache, 2.8GHz (4.5GHz), 45W (CM246) Intel® Xeon® E-2254ML, 4 Cores, 8M Cache, 1.7GHz (3.5GHz), 25W (CM246) Intel® Xeon® E-2254ME, 4 Cores, 8M Cache, 2.6GHz (3.8GHz), 45W (CM246) Intel® Celeron® G4930E, 2 Cores, 2M Cache, 2.4GHz (2.4GHz), 35W (CM246) Intel® Celeron® G5600E, 2 Cores, 4M Cache, 3.9GHz, 35W (HM370) Intel® Celeron® G4932E, 2 Cores, 2M Cache, 1.9GHz (1.9GHz), 25W (HM370)
	<b>Chipset</b>	Intel® CM246 Chipset (Support ECC) Intel® QM370/HM370 Chipset
	<b>Memory</b>	Four 260-pin SODIMM up to 96GB Dual Channel DDR4 2666MHz
	<b>BIOS</b>	AMI SPI 128Mbit
	<b>GRAPHICS</b>	<b>Controller</b>
	<b>Feature</b>	OpenGL up to 4.5, DirectX 11, OpenCL 2.1 HW Decode: HEVC/H.265, H.264, M/JPEG, MPEG2, VC1/WMV9, VP8 (8-bit), VP9 (10-bit) HW Encode: HEVC/H.265, M/JPEG, MPEG2, VP8
	<b>Display</b>	1 x VGA/DDI (DDI available upon request) 1 x LVDS/eDP (eDP available upon request) 2 x DDI (HDMI/DVI/DP++) VGA: resolution up to 2560x1600 @ 60Hz LVDS: dual channel 24-bit, resolution up to 1920x1200 @ 60Hz HDMI: resolution up to 2560x1600 @ 60Hz/4096x2160 @ 24Hz DVI: resolution up to 1920x1200 @ 60Hz DP++/eDP: resolution up to 4096x2304 @ 60Hz
	<b>Triple Displays</b>	VGA + LVDS + DDI or VGA + DDI 1 + DDI 2 eDP + 2 DDI (available upon request)
<b>EXPANSION</b>	<b>Interface</b>	1 x PCIe x16 8 x PCIe x1 1 x LPC 1 x I2C 1 x SMBus 2 x UART (TX/RX)
<b>AUDIO</b>	<b>Interface</b>	HD Audio
<b>ETHERNET</b>	<b>Controller</b>	1 x Intel® I219LM/V with iAMT12.0 10/100/1000Mbps PCIe (Only CM246/QM370 has iAMT)
<b>I/O</b>	<b>USB</b>	4 x USB 3.1 8 x USB 2.0
	<b>SATA</b>	4 x SATA 3.0 (up to 6Gb/s) RAID 0/1/5/10
	<b>DIO</b>	1 x 8-bit DIO (Default 4 inputs and 4 outputs)
<b>STORAGE (Option)</b>	<b>NVMe SSD</b>	PCIe x4, 64GB~1TB Share NVMe SSD PCIe 0/1 Port with SATA 2/3 Port SSD and 2nd DDR4 SO-DIMM(DIMM2) is alternative function.
<b>WATCHDOG TIMER</b>	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds
<b>SECURITY</b>	<b>TPM</b>	TPM2.0 by request. (CM246/QM370)
<b>POWER</b>	<b>Type</b>	8.5V~20V, 5VSB, VCC_RTC (ATX mode) 8.5V~20V, VCC_RTC (AT mode)
	<b>Consumption</b>	Typical: 12V @ 0.88A (10.56Watt) Max.: 12V @ 3.15A (37.8Watt)
<b>OS SUPPORT</b>		Windows: Windows 10 IoT Enterprise 64-bit / Linux
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: 0 to 60°C Storage: -40 to 85°C -40 to 85°C
	<b>Humidity</b>	Operating: 5 to 90% RH Storage: 5 to 90% RH
	<b>MTBF</b>	257,700 hrs @ 25°C; 173,475 hrs @ 45°C; 83892 hrs @ 60°C excluding accessories Calculation Model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled
<b>MECHANICAL</b>	<b>Dimensions</b>	COM Express® Basic 95mm (3.74") x 125mm (4.9")
	<b>Compliance</b>	PICMG COM Express® R3.0, Type 6
<b>STANDARDS AND CERTIFICATIONS</b>	<b>Certification</b>	CE, FCC, UKCA

**▶ Ordering Information**

Model Name	P/N	Processor	Memory	VGA/DDI	LVDS/eDP	GbE	USB 3.1	USB 2.0	Power	Thermal	Temp.
<b>CH961-CM246TS-2276ME</b>	770-CH9611-000G	E-2276ME	4 SODIMM	VGA	LVDS	1	4	8	ATX/AT	Cooler	-40~85°C
<b>CH961-QM370TS-9850HE</b>	770-CH9611-100G	i7-9850HE	4 SODIMM	VGA	LVDS	1	4	8	ATX/AT	Cooler	-40~85°C
<b>CH961-HM370BS-9100HL</b>	770-CH9611-200G	i3-9100HL	4 SODIMM	DDI	eDP	1	4	8	ATX/AT	Cooler	0~60°C
<b>CH961-HM370BS-G4932E</b>	770-CH9611-300G	G4932E	4 SODIMM	VGA	LVDS	1	4	8	ATX/AT	Cooler	0~60°C

**▶ Optional Items**

Item Name	P/N	Description
<b>COM332-B(R.B1) carrier board kit</b>	770-CM3322-000G	
<b>Cooler (Height: 11mm) for 0 to 60°C</b>	A71-111104-000G	COM EXPRESS COOLER, AL6063-T5 125*95.2*36.58mm, Nickel Plating, 2 BALL, 12V, 1*3P/1.25mm, L=150mm, R127010BUACR72aR, FOR CH961, AMF-368(FEVER)RoHS
<b>Cooler (Height: 11mm) for -40 to 85°C</b>	A71-111104-010G	COM EXPRESS COOLER, AL6063-T5 125*95.2*51.98mm, Nickel Plating, 2 BALL, 12V, 1*3P/1.25mm, L=150mm, PF8025B1-0000-G99, FOR CH961 WIDE-TEMP, AMF-368A(FEVER)RoHS

**▶ Packing List**

1 CH961 board
1 Cooler <ul style="list-style-type: none"> <li>• Standard: 0 to 60°C (Height: 36.58mm, A71-111104-000G)</li> <li>• Wide Temp: -40 to 85°C (Height: 51.98mm, A71-111104-010G)</li> </ul>