



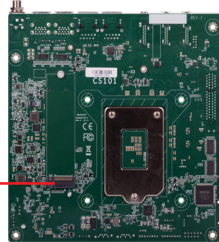
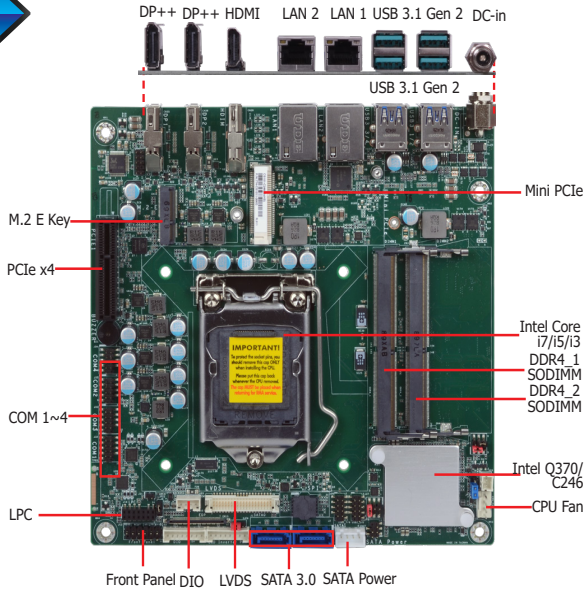
**9th/8th Gen Intel® Core™ Processor
Thin Mini-ITX**



CS101-Q370/C246 Desktop

Features

- **2 DDR4 2666MHz SODIMM up to 32GB**
- **Their independent displays: DP++ +DP++ +HDMI, DP++ +DP++ +LVDS(eDP), DP++ +HDMI+LVDS(eDP)**
- **DP++ resolution supports up to 4096x2304 @ 60Hz**
- **Multiple Expansions: 1 PCIe x4 Gen 3, 1 Full-size Mini PCIe, 1 M.2 2280 M Key, 1 M.2 2230 E Key**
- **Storage: 2 SATA 3.0**
- **Rich I/O: 2 Intel GbE, 4 COM, 4 USB 3.1 Gen 2, 4 USB 2.0**



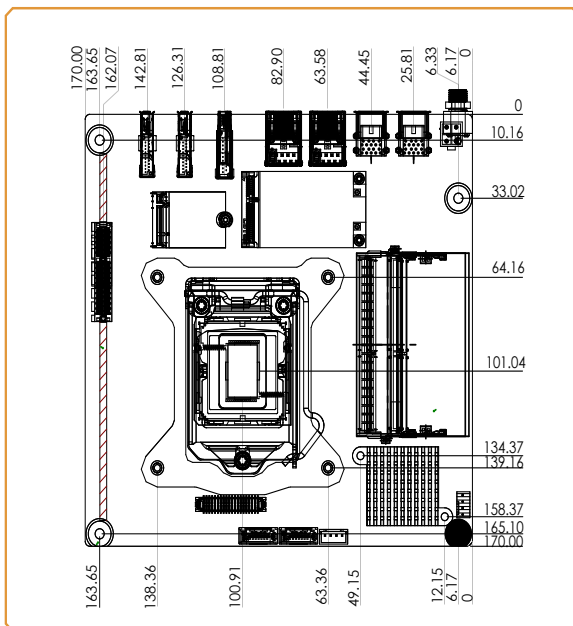
Bottom View



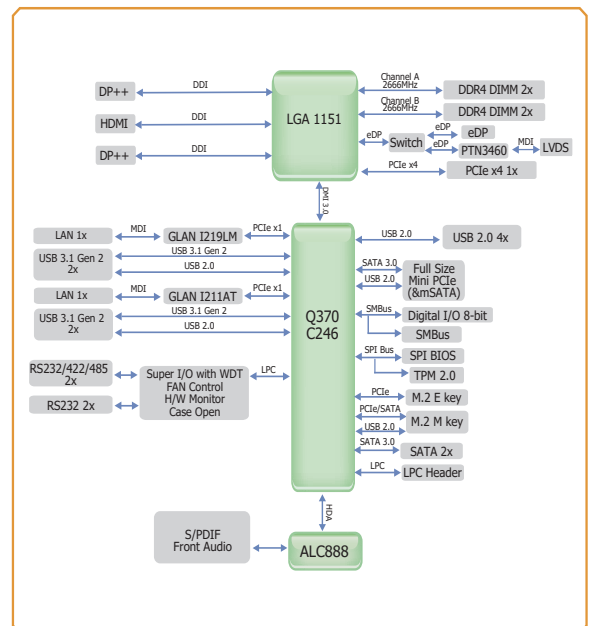
Ordering Information

Model Name	P/N	Memory	LVDS/eDP	HDMI/DP++	GbE	RS-232	RS-232/422/485	USB 3.1 Gen 2	USB 2.0	SATA 3.0	TPM	Power	Temp.
CS101-Q370	770-CS1011-100G	2 SODIMM	LVDS	DP++	2	2	2	4	4	2	2.0	12V DC	0 to 60°C
CS101-C246	770-CS1011-200G	2 SODIMM	LVDS	DP++	2	2	2	4	4	2	2.0	12V DC	0 to 60°C

Mechanical Drawing



Block Diagram





Specifications

SYSTEM	Processor	9th Generation Intel® Core™ Processors, LGA 1151 Socket, TDP up to 65W Intel® Core i7-9700TE Processor (Core 8; Max speed 3.8 GHz; TDP 35W) Intel® Core i5-9500E Processor (Core 6; Max speed 4.2 GHz; TDP 65W) Intel® Core i5-9500TE Processor (Core 6; Max speed 3.6 GHz; TDP 35W) Intel® Core i3-9100E Processor (Core 4; Max speed 3.7 GHz; TDP 65W) Intel® Core i3-9100TE Processor (Core 4; Max speed 3.2 GHz; TDP 35W) 8th Generation Intel® Core™ Processors, LGA 1151 Socket, TDP up to 80W Intel® Xeon E-2176G Processor (Core 6; Max speed 4.7 GHz; TDP 80W) Intel® Core™ i7-8700 Processor (Core 6; Max speed 4.6 GHz; TDP 65W) Intel® Core™ i5-8500 Processor (Core 6; Max speed 4.1 GHz; TDP 65W) Intel® Core™ i3-8100 Processor (Core 4; Max speed 3.6 GHz; TDP 65W) Intel® Pentium G5400 Processor (Core 2; Max speed 3.7 GHz; TDP 58W) Intel® Celeron G4900 Processor (Core 2; Max speed 3.1 GHz; TDP 54W)	
	Memory	Two 260-pin SODIMM up to 32GB	Dual Channel DDR4 2666MHz (C246 support ECC)
	Chipset	Intel® Q370/C246 Chipset	
	BIOS	AMI SPI 128Mbit	
GRAPHICS	Controller	Intel® UHD Graphics 630 (only Pentium G5400, Celeron G4900 support 610)	
	Feature	OpenGL 4.4, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9	
	Display	1 x LVDS/eDP (eDP available upon request) 1 x HDMI 2 x DP++	LVDS: resolution up to 1920x1200 @ 60Hz eDP: resolution up to 4096x2304 @ 60Hz HDMI: resolution up to 4096x2160 @ 60Hz DP1.2: resolution up to 4096x2304 @ 60Hz
	Triple Displays	DP++ +DP++ +HDMI, DP++ +DP++ +LVDS(eDP), DP++ +HDMI+LVDS(eDP)	
EXPANSION	Interface	1 x PCIe x4 (Gen 3) 1 x Full-size Mini PCIe (colay mSATA) 1 x M.2 2280 M Key (PCIe Gen3 x 4 NVMe/SATA) 1 x M.2 2230 E Key (USB/PCIe)	
AUDIO	Audio Codec	Realtek ALC888S-VD2-GR	
ETHERNET	Controller	1 x Intel® I219LM PHY 1 x Intel® I211AT PCIe (10/100/1000Mbps)	
REAR I/O	Ethernet	2 x GbE (RJ-45)	
	USB	4 x USB 3.1 Gen2 Type A Connector	
	Display	1 x HDMI	2 x DP++
INTERNAL I/O	Serial	2 x RS-232/422/485 (2.0mm pitch) 2 x RS-232 (RS-232 w/ power)(2.0mm pitch)	
	Display	1 x LVDS Connector 1 x eDP (available upon request)	
	Audio	1 x Front Audio	
	SATA	2 x SATA 3.0 (up to 6Gb/s) 1 x SATA Power	RAID 0/1/5/10
	DIO	1 x 8-bit DIO	
	SMBus	1 x SMBus	
	USB	4 x USB 2.0	
	WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	dTPM 2.0	
POWER	Type	12V DC-in	
	Connector	DC jack colay 4 pins power connector (opt.)	
	RTC Battery	CR2032 Coin Cell	
	Consumption	Idle: i7-9700 65W: 12V @ 0.96A (11.52W) Max: i7-9700 65W: 12V @ 13.40A (160.80W)	
OS SUPPORT	Microsoft/Linux	Windows 10 IoT Enterprise 64-bit	Linux
ENVIRONMENT	Temperature	Operating: 0 to 60°C	Storage: -40 to 85°C
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	CS100-C246: 590,510 hrs @ 25°C; 349,867 hrs @ 45°C; 225,814 hrs @ 60°C CS100-Q370: 590,510 hrs @ 25°C; 349,867 hrs @ 45°C; 225,814 hrs @ 60°C Calculation model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled	
	MECHANICAL	Dimensions	Mini-ITX Form Factor
	Height	PCB: 1.6mm	Top Side: 20mm, Bottom Side: 3mm

Packing List

• 1 CS101 motherboard	
• 1 Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• 1 COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G

Optional Items

• USB port cable (Length: 200mm)	A81-001032-016G
• COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
• Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• Serial ATA power cable	A81-002044-016G
• I/O shield	A49-CS1010-000G
• I/O shield (Thin type)	A49-CS1010-010G
• Thermal solution (For 35W, Height: 37.3mm)	A71-103004-000G
• Thermal solution (For 65W, Height: 72.8mm)	552-200049-000G
• Thermal solution (For 80W, Height: 77.1mm)	761-103001-000G

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US

sales@assured-systems.com

Sales: +1 347 719 4508
Support: +1 347 719 4508

1309 Coffeen Ave
Ste 1200
Sheridan
WY 82801
USA

EMEA

sales@assured-systems.com

Sales: +44 (0)1785 879 050
Support: +44 (0)1785 879 050

Unit A5 Douglas Park
Stone Business Park
Stone
ST15 0YJ
United Kingdom

VAT Number: 120 9546 28
Business Registration Number: 07699660