



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

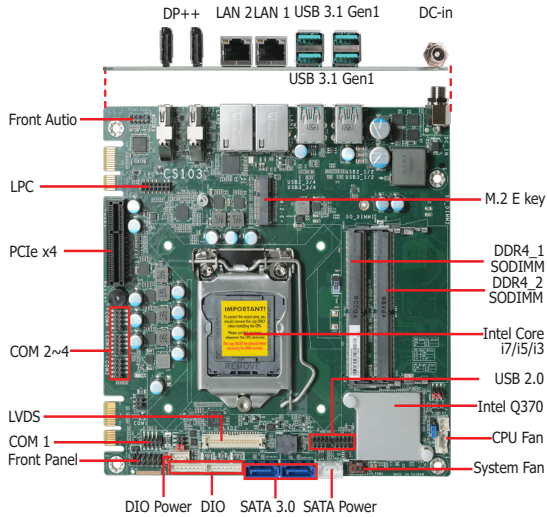


CS103-H310

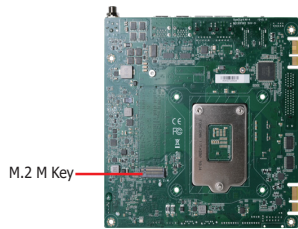
Desktop

Features

- **2 DDR4 2666MHz SODIMM up to 32GB**
- **Dual independent displays:
LVDS + DP++, DP++ + DP++**
- **DP++ resolution supports up to 4096x2304 @ 60Hz**
- **Multiple Expansions: 1 PCIe x4 Gen 3, 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 1, 4 USB 2.0**



Top View



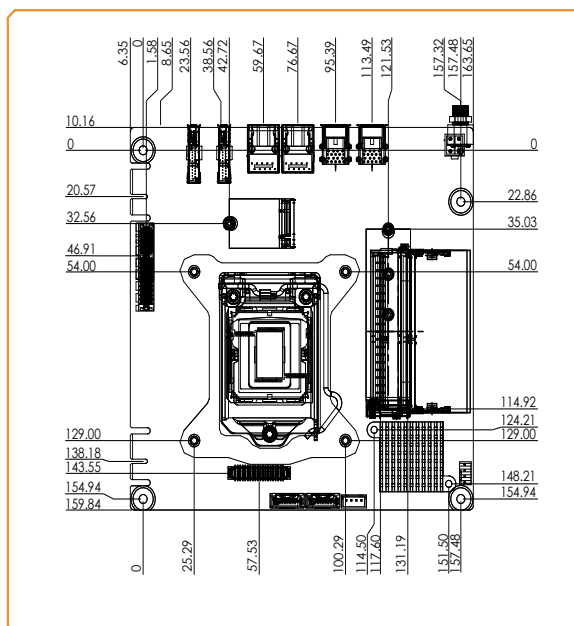
Bottom View

*The photos above refer to C103-Q370.

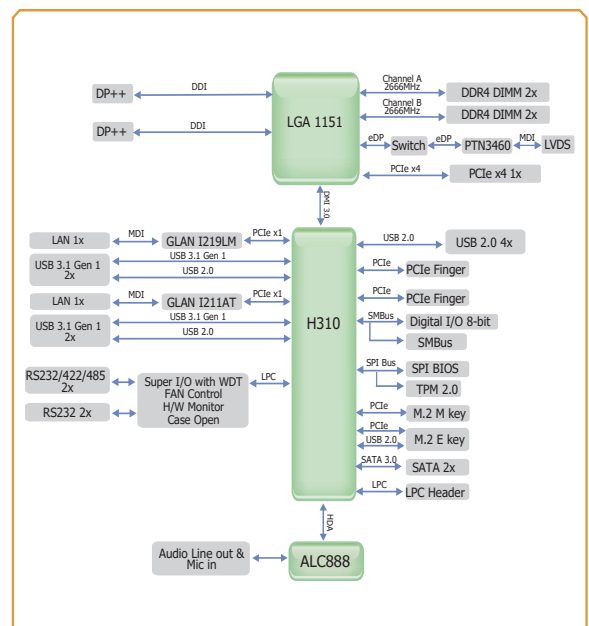
Ordering Information

Model Name	P/N	Memory	LVDS	DP++	GbE	RS-232	RS-232/422/485	USB 3.1 Gen 1	USB 2.0	SATA 3.0	TPM	Power	Temp.
CS103-H310	770-CS1031-000G	2 SODIMM	1	2	2	2	2	4	4	2	2.0	9-36V 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 3.8GHz; TDP 35W) Intel® Core i5-9500E Processor (Core 6; Max speed 4.2GHz; TDP 65W) Intel® Core i5-9500TE Processor (Core 6; Max speed 3.6GHz; TDP 35W) Intel® Core i3-9100E Processor (Core 4; Max speed 3.7GHz; TDP 65W) Intel® Core i3-9100TE Processor (Core 4; Max speed 3.2GHz; TDP 35W) 8th Generation Intel® Core™ Processors, LGA 1151 Socket, TDP up to 65W Intel® Core™ i7-8700 Processor (Core 6; Max speed 4.6GHz; TDP 65W) Intel® Core™ i7-8700T Processor (Core 6; Max speed 4.0GHz; TDP 35W) Intel® Core™ i5-8500 Processor (Core 6; Max speed 4.1GHz; TDP 65W) Intel® Core™ i5-8500T Processor (Core 6; Max speed 3.5GHz; TDP 35W) Intel® Core™ i3-8100 Processor (Core 4; Max speed 3.6GHz; TDP 65W) Intel® Core™ i3-8100T Processor (Core 4; Max speed 3.1GHz; TDP 35W) Intel® Pentium G5400 Processor (Core 2; Max speed 3.7GHz; TDP 58W) Intel® Celeron G4900 Processor (Core 2; Max speed 3.1GHz; TDP 54W)	
	Memory	Two 260-pin SODIMM up to 32GB	Dual Channel DDR4 2666MHz (C246 support ECC)
	Chipset	Intel® H310 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 2 x DP++	LVDS: resolution up to 1920x1200 @ 60Hz DP1.2: resolution up to 4096x2304 @ 60Hz
	Dual Displays	DP+++ + LVDS, DP+++ + DP+++	
EXPANSION	Interface	1 x PCIe x4 (Gen 3) 2 x DFI proprietary extension bus for PCIe/PCI expansion 1 x M.2 2230 E Key (USB/PCIe) 1 x M.2 2280 M Key (PCIe Gen2 x1)	
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 USB3.1 Gen1 Type A Connector	
	Display	2 x DP++	
INTERNAL I/O	Serial	2 x RS-232/422/485 (2.0mm pitch) 2 x RS-232 (2.0mm pitch)	
	Display	1 x LVDS Connector	
	Audio	1 x Front Audio	
	SATA	2 x SATA 3.0 (up to 6Gb/s) 1 x SATA Power	
	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	9-36V DC-in	
	Connector	DC jack colay 4 pins power connector (opt.)	
	RTC Battery	CR2032 Coin Cell	
	Consumption	TBD	
OS SUPPORT	Microsoft/Linux	Windows 10 IoT Enterprise 64-bit	Linux
ENVIRONMENT	Temperature	Operating: -10 to 70°C	Storage: -40 to 85°C
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	TBD	
	MECHANICAL	Dimensions	Mini-ITX Form Factor
	Height	PCB: 1.6mm	Top Side: 20mm, Bottom Side: 3mm

Packing List

• 1 CS103 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 2.0 port cable (Length: 200mm)	332-753059-000G
• COM port cable (Length: 250mm, 1 x COM ports)	A81-015011-001G
• Serial ATA data with power cable (Length: 300mm)	A81-002013-000G
• I/O shield	TBD
• Thermal solution (For 35W, Height: 37.3mm)	A71-103004-000G
• Thermal solution (For 65W, Height: 72.8mm)	552-200049-000G

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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