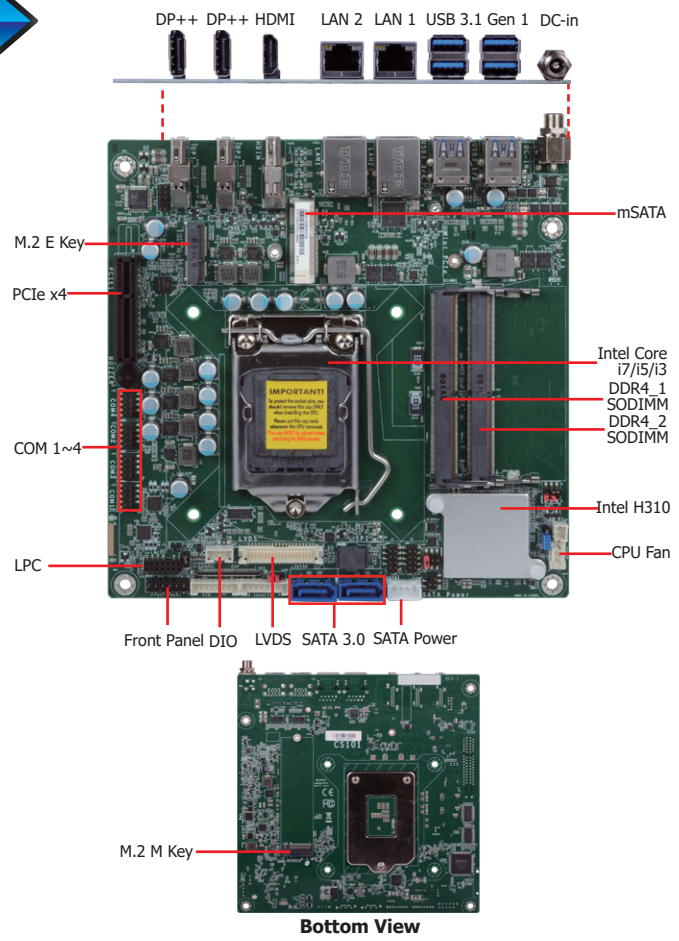


CS101-H310

Desktop

H310



Features

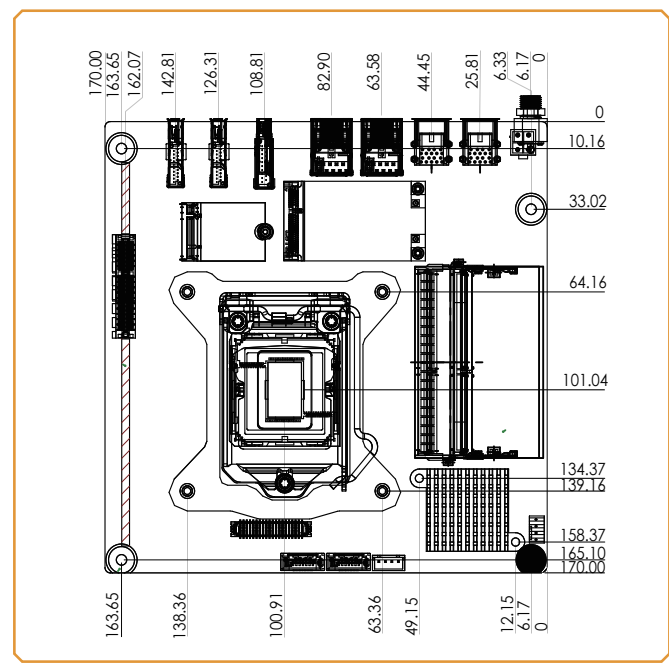
- 2 DDR4 2666MHz SODIMM up to 32GB
- Dual independent displays: DP++ + DP++, DP++ + HDMI, DP++ + LVDS/eDP, HDMI + LVDS/eDP
- DP++ resolution supports up to 4096x2304 @ 60Hz
- Multiple Expansions: 1 PCIe x4 Gen 3, 1 mSATA, 1 M.2 2280 M Key, 1 M.2 2230 E Key
- Storage: 2 SATA 3.0
- Rich I/O: 2 Intel GbE,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



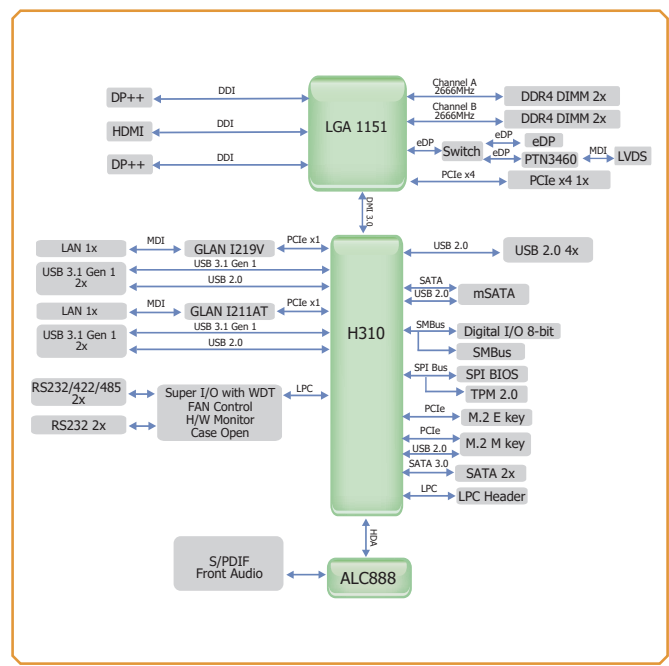
Ordering Information

Model Name	P/N	Memory	LVDS/eDP	DP++	HDMI	GbE	RS-232	RS-232/422/485	USB 3.1 Gen 1	USB 2.0	SATA 3.0	TPM	Power	Temp.
CS101-H310	770-CS1011-000G	2 SODIMM	LVDS	2	1	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 Intel® Core i7-9700K Processor (Core 8; Max speed 3.6 GHz; TDP 95W) 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 Intel® Core™ i7-8700 Processor (Core 6; Max speed 4.6 GHz; TDP 65W) Intel® Core™ i7-8700T Processor (Core 6; Max speed 4.0 GHz; TDP 35W) Intel® Core™ i5-8500 Processor (Core 6; Max speed 4.1 GHz; TDP 65W) Intel® Core™ i5-8500T Processor (Core 6; Max speed 3.5 GHz; TDP 35W) Intel® Core™ i3-8100 Processor (Core 4; Max speed 3.6 GHz; TDP 65W) Intel® Core™ i3-8100T Processor (Core 4; Max speed 3.1 GHz; TDP 35W) 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 2400/2666MHz	
	Chipset	Intel® H310 Chipset		
	BIOS	AMI SPI 128Mbit		
	GRAPHICS	Controller	Intel® UHD Graphics 630 (Pentium G5400 and Celeron G4900 support UHD Graphics 610)	
	Feature	OpenGL 4.5, 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 (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 @ 30Hz DP1.2: resolution up to 4096x2304 @ 60Hz	
	Dual Displays	DP++ + DP++, DP++ + HDMI, DP++ + LVDS/eDP, HDMI+ LVDS/eDP		
EXPANSION	Interface	1 x PCIe x4 (Gen 3) 1 x mSATA 1 x M.2 2280 M Key (PCIe x1) 1 x M.2 2230 E Key (USB/PCIe)		
AUDIO	Audio Codec	Realtek ALC888S-VD2-GR		
ETHERNET	Controller	1 x Intel® I219V PHY (10/100/1000Mbps) 1 x Intel® I210AT PCIe (10/100/1000Mbps)		
REAR I/O	Ethernet	2 x GbE (RJ-45)		
	USB	4 x USB 3.1 Gen1		
	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 1 x eDP (available upon request)		
	Audio	1 x Front Audio (2.0mm pitch)		
	USB	4 x USB 2.0 (2.0mm pitch)		
	SATA	2 x SATA 3.0 (up to 6Gb/s) 1 x SATA Power	RAID 0/1	
	DIO	1 x 8-bit DIO	1 x DIO Power	
	LPC	1 x LPC		
	SMBus	1 x SMBus		
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds		
SECURITY	TPM	dTPM 2.0		
POWER	Type	Single 12V +/-5% DC		
	Connector	DC-in Jack	Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	
	RTC Battery	CR2032 Coin Cell		
	Consumption	Idle: i7-9700K 95W: 12V @ 0.96A (11.52W) Max: i7-9700K 95W: 12V @ 13.4A (160.8W)		
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	CS101-H310: 593,477 hrs @ 25°C; 351,641 hrs @ 45°C; 226,946 hrs @ 60°C Calculation model: Telcordia Issue 4 Environment: GB, GC – Ground Benign, Controlled		
	MECHANICAL	Dimensions	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")	
	Height	PCB: 1.6mm Top Side: 20mm, Bottom Side: 3mm		
CERTIFICATION	CE, FCC, RoHS, UL			

Packing List

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

Optional Items

• USB port cable (Length: 200mm)	A81-001032-016G
• COM port cable (Length: 250mm, 1 COM port)	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 95W, Height: 72.8mm)	552-200049-000G