AmITX-CF-G

Mini-ITX Embedded Board with 8th/9th Gen Intel® Core™ Desktop Processor

Features

- 8th/9th Gen Intel® Core™ i7/i5/i3, Intel® Pentium® and Celeron® Desktop Processor with Intel® Q370/H310 Chipset
- Up to 32GB dual channel DDR4 at 2400MHz
- PCIe x16, PCIe x1, M.2 and Mini-PCIe expansion
- 3 DisplayPort outputs on rear IO (Q370)
- Supports Smart Embedded Management Agent (SEMA®) functions
- 2x USB 3.1 Gen 1 onboard header (H310: 1x USB 2.0)
- 4x USB 3.1 Gen 1



Specifications

Processor & System

CPU

Embedded 9th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1151 socket

Intel® Core™ i7-9700TE Processor, 8C, 1.8/3.8GHz, 12M, 35W
Intel® Core™ i7-9700E Processor, 8C, 2.6/4.4GHz, 12M, 65W
Intel® Core™ i5-9500TE Processor, 6C, 2.2/3.6GHz, 9M, 35W
Intel® Core™ i5-9500E Processor, 6C, 3.0/4.2GHz, 9M, 65W
Intel® Core™ i3-9100E Processor, 4C, 3.1/3.7GHz, 6M, 65W
Intel® Core™ i3-9100TE Processor, 4C, 2.2/3.2GHz, 6M, 35W

Embedded 8th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1151 socket

Intel® Core™ i7-8700 Processor, 6C, 3.2/4.6GHz, 12M, 65W
Intel® Core™ i7-8700T Processor, 6C, 2.4/4.0GHz, 12M, 35W
Intel® Core™ i5-8500 Processor, 6C, 3.0/4.1GHz, 9M, 65W
Intel® Core™ i5-8500T Processor, 6C, 2.1/3.5GHz, 9M, 35W
Intel® Core™ i3-8100 Processor, 4C, 3.6GHz, 6M, 65W
Intel® Core™ i3-8100T Processor, 4C, 3.1GHz, 6M, 35W
Intel® Pentium® Gold G5400 Processor, 2C, 3.7GHz, 4M, 58W
Intel® Pentium® Gold G5400T Processor, 2C, 3.1GHz, 4M, 35W
Intel® Celeron® G4900 Processor, 2C, 3.1GHz, 2M, 54W
Intel® Celeron® G4900T Processor, 2C, 2.9GHz, 2M, 35W

Chipset

Intel® Q370/H310 Chipset

BIOS

AMI EFI in 16MB SPI BIOS
Optional SPI BIOS socket onboard and SPI header for external BIOS, dual BIOS support
TPM module soldered onboard

Debug Header

40-pin multipurpose flat cable connector. Use in combination with DB-40 debug module providing BIOS POST code LEDs, BMC access, SPI BIOS, flashing, power testpoints, debug LEDs

Memory

Dual channel non-ECC 2400 MHz DDR4 memory up to 32GB in dual vertical SODIMM sockets

Board Management Controller

Supports: voltage monitoring, system and CPU temperature monitoring, smart fan control,logistics and forensic information, general purpose I^2C, watchdog timer

I/O Interfaces

Expansion Slots

1x PCIe x16 Gen3 slot
1x PCIe x1 Gen3 slot (Q370: PCIe 3.0 / H310: PCIe 2.0)
1x full-size Mini-PCIe slot (Q370:PCIe x1, mSATA and USB 2.0 / H310: PCIe x1) (top side)
1x M.2 (M key, 2242, support NVMe; H310: PCIe 2.0 x 1 signal) (top side)
1x SPI header for external BIOS

Serial ATA

3x SATA 6 Gbps ports (Jumper select NA/3.3V/5V for SATA1 and SATA2 to deliver power by SATA pin7; Default is NA)
2x SATA power connector

USB

4x USB 3.1 Gen 1 and 4x USB 2.0 on rear I/O
2x USB 3.1 Gen 1 onboard header (H310 : 1x USB 2.0)
1x USB 3.1 Gen 1 on vertical connector with keep out area for dongle (H310: USB 2.0)

Serial Ports (9 bit protocol support)

1x RS-232/422/485 on internal header
3x RS-232 on internal headers
1x CCTALK x2 on internal header

Digital IO

8x GPIO via onboard feature connector

Specifications

Audio

Audio Codec

Realtek® ALC888

Interfaces

7.1 channel audio via 5 jacks and S/PDIF output on rear I/O
7.1 channel audio signals and S/PDIF output on internal header

Display

Graphics Core

Intel® 9.5th generation LP graphics core architecture with up to 24 execution units supporting DirectX 12, OGL4.5, and up to three independent, simultaneous displays

DisplayPort

Up to 3x DisplayPort v1.2 with max resolution of 4096x2304@60Hz
3x DisplayPort(Q370) , 2x DisplayPort (H310)

Ethernet

Controller: 2x Realtek RTL8111G Ethernet controller
Interface: PCI Express x1 Bus
10/100/1000 GbE connection

Power

Standard Input: ATX: 12V ±5% / 5Vsb ±5%
AT: 12V ±5%
Peripheral Output: Onboard headers for fan and SATA power
ATX Power Connector (14-pin)

Mechanical and Environmental

Dimension (mm): 170 mm x 170 mm (L x W)

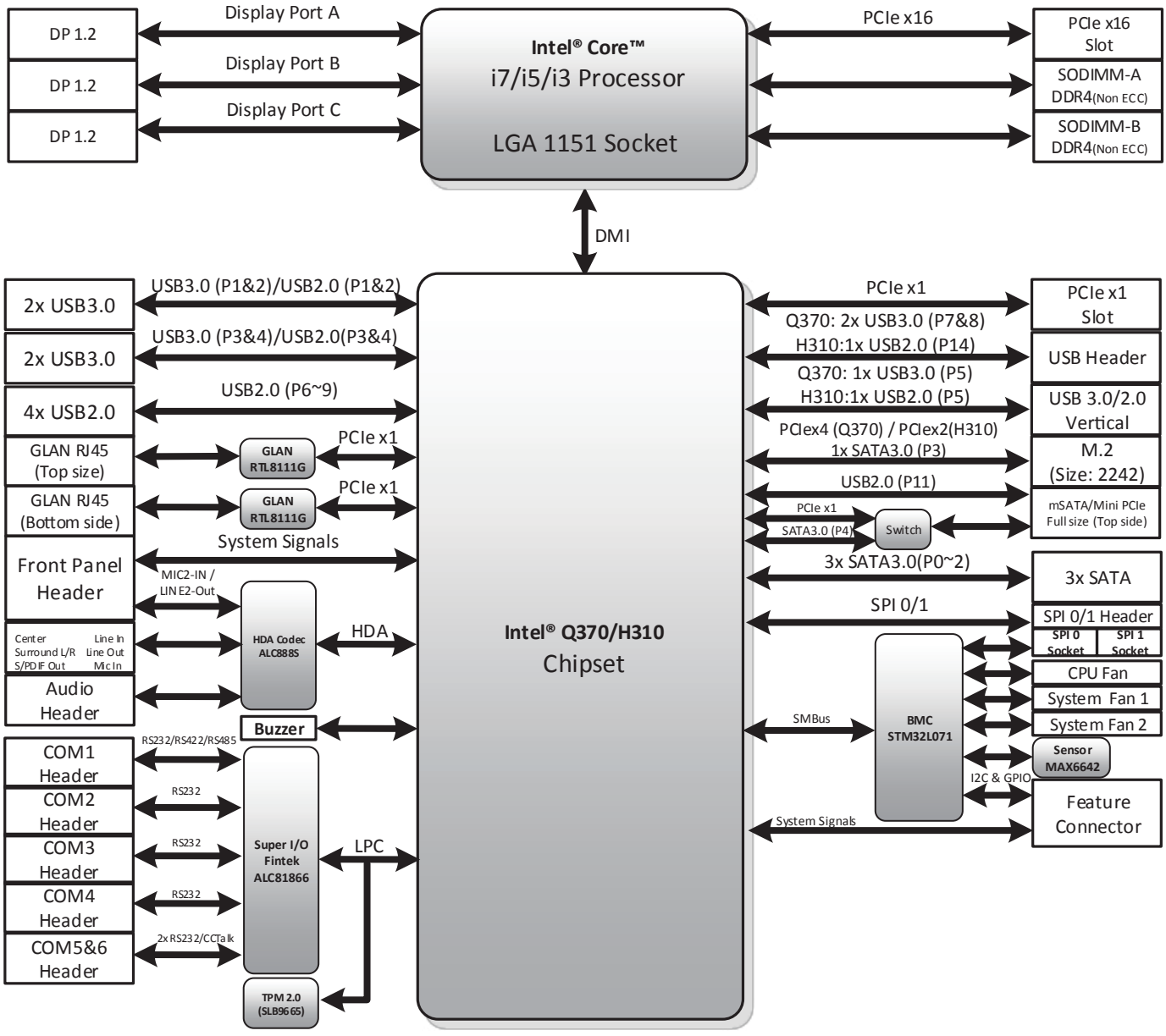
Operating Temperature

Standard: 0˚C to +60˚C
Storage Temperature: -20˚C to +80˚C
Certification: CE, FCC Class A

Relative Humidity

40° C @ 95% RH Non-condensing

Functional Diagram



AmITX-CF-G

Ordering Information

- **AmITX-CF-G-Q370**
  Mini-ITX Embedded Board with 8th/9th generation Intel® Core™ i7/i5/i3 Desktop Processor with Q370 Chipset
- **AmITX-CF-G-H310**
  Mini-ITX Embedded Board with 8th/9th generation Intel® Core™ i7/i5/i3 Desktop Processor with H310 Chipset

Optional Accessories

- **30-20876-0000**
  COM Port Cable, 1 Port, 25cm
- **30-20873-0000**
  USB 3.0 Cable, 2 ports, 20cm (for AmITX-KB-G-Q370)
- **30-20874-1000**
  USB 2.0 Cable, 2 ports, 20cm (for AmITX-KB-G-H310)
- **32-20581-0000**
  LGA1150 CPU Cooler, H=59.52mm, 35W
- **32-20818-1000-A0**
  LGA1150 CPU Cooler, H=65.6mm, 65W

Packing List

- **30-20872-0000**
  ATX/AT Power Cable
- **30-20875-0000**
  SATA Dual Power Cable
- **30-10057-0600**
  SATA Cable
- **34-25314-1000**
  Rear I/O Shield

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