AmITX-SL-G

Mini-ITX Embedded Board with 6th/7th Gen Intel® Core™ i7/i5/i3 Desktop Processor

Features

- 6th/7th Gen Intel® Core™ i7/i5/i3, Intel® Pentium® and Celeron® Desktop Processor with Intel® Q170/H110 Chipset
- Up to 32GB dual channel DDR4 at 2133/2400MHz
- PCIe x16, PCIe x1 and Mini PCIe expansion
- 3 DisplayPort outputs on rear IO (Q170)
- Supports Smart Embedded Management Agent (SEMA®) functions

Specifications

Processor & System

CPU

Desktop 6th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1151 socket

Intel® Core™ i7-6700 Processor, 4C, 3.4/4.0 GHz, 8M, 65W
Intel® Core™ i7-6700TE Processor, 4C, 2.4/3.4 GHz, 8M, 35W
Intel® Core™ i5-6500 Processor, 4C , 3.2/3.6 GHz 6M, 65W
Intel® Core™ i5-6500TE Processor, 4C, 2.3/3.3 GHz, 6M, 35W
Intel® Core™ i3-6100 Processor, 2C, 3.7 GHz, 3M, 51W
Intel® Core™ i3-6100TE Processor, 2C, 2.7 GHz, 4M, 35W
Intel® Pentium® G4400 Processor, 2C, 3.3 GHz, 3M, 54W
Intel® Pentium® G4400TE Processor, 2C, 2.4 GHz, 3M, 35W
Intel® Celeron® G3900 Processor, 2C, 2.8 GHz, 2M, 51W
Intel® Celeron® G3900TE Processor, 2C, 2.3 GHz, 2M, 35W

Desktop 7th Generation Intel® Core™ i7/i5/i3 and Pentium®/Celeron® Processor, LGA1151 socket

Intel® Core™ i7-7700 Processor, 4C, 3.6/4.2 GHz, 8M, 65W
Intel® Core™ i7-7700T Processor, 4C, 2.9/3.8 GHz, 8M, 35W
Intel® Core™ i5-7500 Processor, 4C, 3.4/3.8 GHz, 6M, 65W
Intel® Core™ i5-7500T Processor, 4C, 2.7/3.3 GHz, 6M, 35W
Intel® Core™ i3-7101E Processor, 2C, 3.9 GHz, 3M, 54W
Intel® Core™ i3-7101TE Processor, 2C, 3.4GHz, 3M, 35W

Supports: Intel® VT, Intel® TXT, Intel® SSE4.2, Intel® HT Technology, Intel® 64 Architecture, Execute Disable Bit, Intel® Turbo Boost Technology 2.0, Intel® AVX2, Intel® AES-NI, PCLMULQDQ Instruction, Intel® Secure Key and Intel® TSX-NI

Chipset

Intel® Q170/H110 Chipset

BIOS

AMI EFI in 16MB SPI BIOS with Intel® AMT 11.0 support (Q170 only)

SPI header for external BIOS, optional onboard SPI BIOS socket

Debug Interface

40-pin multipurpose flat cable connector for 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 2133/2400 MHz DDR4 memory up to 32GB in dual vertical SODIM sockets

SEMA® Support

Supports: voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I2C, failsafe BIOS (dual BIOS), watchdog timer and triple Smart Fan control

I/O Interfaces

Expansion Slots

1 PCIe x16 Gen3

1 PCIe x1 Gen2

1x Mini-PCIe card (half size): support ing PCIex1(Gen 2)/USB 2.0 (top side)

1x Mini-PCIe card (full size): support ing PCIex1(Gen 2) or mSATA/USB 2.0 (bottom side)

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 3.0 and 4x USB 2.0 on rear I/O

2x USB 3.0 onboard header (H110: USB 2.0)

1x USB 3.0 on vertical connector with keep out area for dongle (H110: USB 2.0)

KB/MS

1x PS/2 internal header

Serial Ports

3x RS-232 headers, 1x RS-232/422/485 headers
(Support NA (Default)/5V/12V by jumper selection)

Digital IO

10 GPIO via onboard feature connector

Audio

Audio Codec

Realtek® ALC886

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

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Note: "Build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product.
Be aware that part numbers for SKUs with "build options" will need to be created and may cause production lead times.

Specifications

Display

Graphics Core

Intel® 9th generation LP graphics core architecture with up to 18 execution units supporting DirectX 11/12, OGL4.3/4.4, and up to three independent, simultaneous displays

DisplayPort

3x DisplayPort v1.2 with resolution up to 4096 x 2160 @ 24Hz
(3x DisplayPort(Q170) , 2x DisplayPort (H110)

LVDS

LVDS (optional): Single/dual channel 24-bit LVDS up to 1920x1080 @ 60 Hz (from eDP-to-LVDS converter)

eDP (build option)

eDP (optional): Supports 3840x2160 resolution @ 60Hz, 24bpp (not available concurrently with LVDS)

Ethernet

Intel® i219-LM (PHY) Ethernet controller (H110: i219-V)

- Supports Intel® AMT 11.0 (Q170 only)
- Supports Intel® vPro™ (Q170 only)

Intel® i211AT (MAC/PHY) Ethernet controller

10/100/1000 GbE connection

TPM

Atmel AT97SC3204 (optional)

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 B

Relative Humidity

40° C @ 95% RH Non-condensing

Operating Systems

Standard Support

6th Gen CPU: Windows 10/8.1/7, Linux

7th Gen CPU: Windows 10, Linux

Extended Support (BSP)

6th Gen CPU: WES7, Linux, VxWorks (TBD)

7th Gen CPU: Linux, VxWorks (TBD)

Intelligent Middleware

SEMA®

Local management, control of embedded computer systems

Extended EAPI for monitoring, controlling and analytics applications

Multiple OS support and across platforms (x86, ARM)

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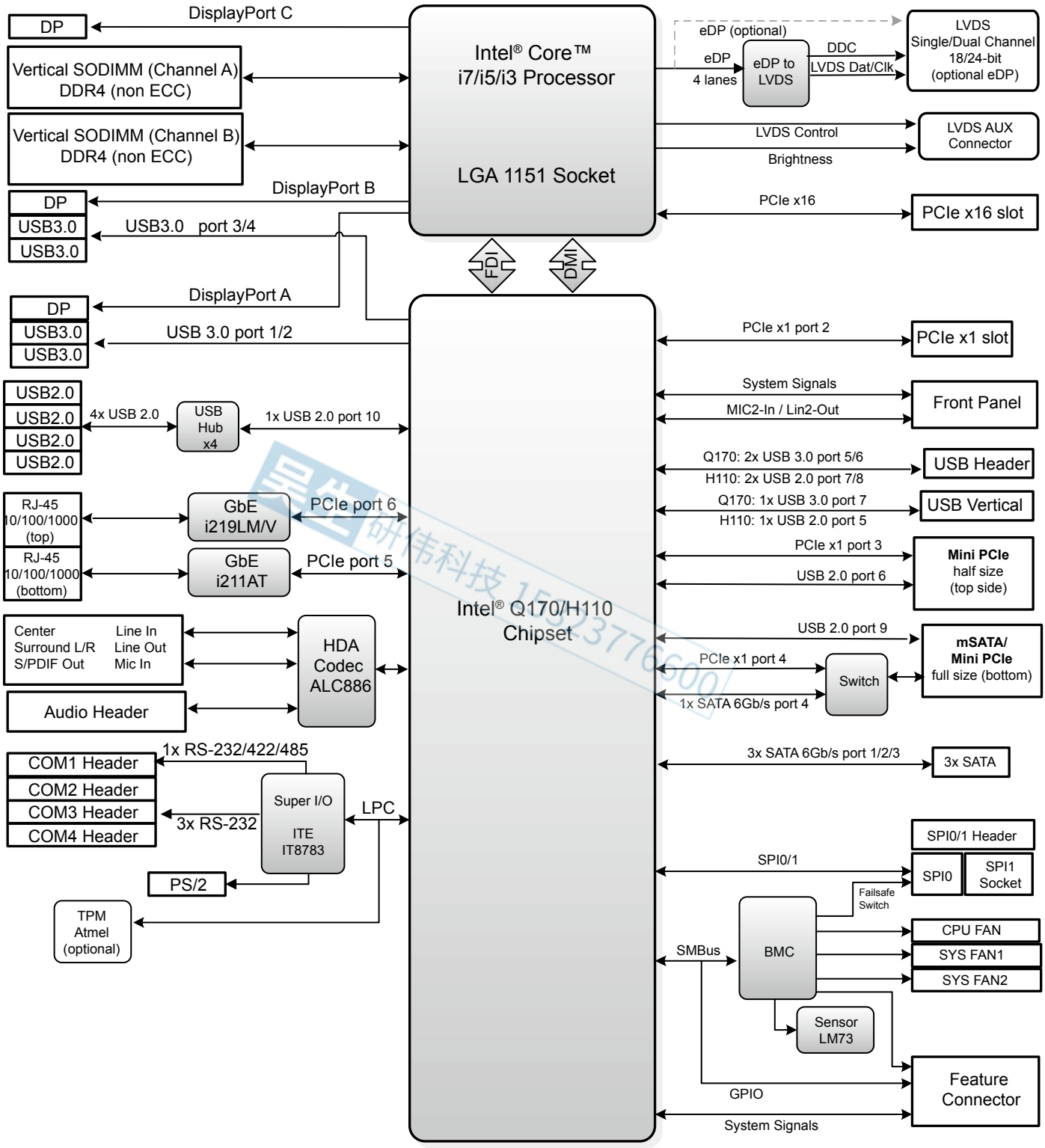
Functional Diagram



Ordering Information

- **AmITX-SL-G-Q170**
  Mini-ITX Embedded Board with 6th/7th generation Intel® Core™ i7/i5/i3 Desktop Processor with Q170 Chipset
- **AmITX-SL-G-H110**
  Mini-ITX Embedded Board with 6th/7th generation Intel® Core™ i7/i5/i3 Desktop Processor with H110 Chipset

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

Optional Accessories

- **30-20876-0000**
  COM Port Cable, 1 Port, 25cm
- **30-20873-0000**
  PS/2 KB/MS Cable, 40cm
- **30-20963-0000**
  USB 3.0 Cable, 2 ports, 20cm (for AmITX-SL-G-Q170)
- **30-20874-1000**
  USB 2.0 Cable, 2 ports, 20cm (for AmITX-SL-G-H110)
- **32-20513-0000**
  LGA1150 CPU Cooler, H=30.0mm, 45W
- **32-20512-0000**
  LGA1150 CPU Cooler, H=46.05mm, 45W
- **32-20113-3000**
  LGA1150 CPU Cooler, H=50.2mm, 95W
- **32-20495-0000**
  LGA1150 CPU Cooler, H=61.4mm, 95W

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