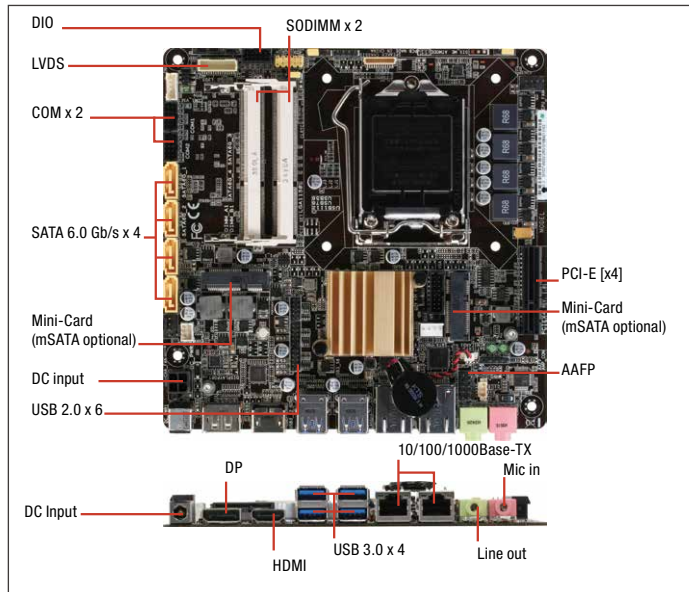


Thin Mini-ITX Embedded Motherboard with Intel® 4th Generation Core™ i Series Processor, 12~24V DC Wide Range Power Input



Specifications

System	
Processor	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W TDPs
Chipset	Intel® Q87
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture (flat type)
Graphics	Intel® HD Graphics
I/O Chipset	NCT6791D
Ethernet	Intel® PHY I217LM Giga LAN x 1, Intel® I210AT Giga LAN x 1
Audio	Realtek® ALC887
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	PCIe [x4] x 1, Full-size Mini-Card x 1 (mSATA default) (PCIe+USB optional, selected by BIOS), Half-size Mini-Card x 1 (PCIe+USB default, selected by BIOS).
BIOS	128M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore 5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 step by software program
Smart Fan Control	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)
Power State	S3, S4, S5
Graphics	
Graphics Chipset	Intel® HD Graphics
Graphics Multi Display	VGA+HDMI, VGA+DP, VGA+LVDS, HDMI+DP, HDMI+LVDS, DP+LVDS, VGA+HDMI+DP, VGA+HDMI+LVDS, HDMI+DP+LVDS, VGA+DP+LVDS
VGA	Up to 1920 x 1200 @60 Hz
DVI	—
HDMI	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio
Display Port	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
eDP	—
Backlight Control	Voltage / PWM
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	12-24V DC (wide rage:12V-5%~ 24V+10%)
Operating Temperature	32°F ~140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~185°F (-40°C ~85°C)
Operating Humidity	0% ~ 90%RH, non-condensing
Certificate	CE & FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb (0.5 Kg)
MTBF (Hours)	104,363

Features

- LGA1150 Socket For Intel® 4th Generation Core™ i Series 22nm Processor
- Intel® Q87
- DDR3 1333/1600 MHz SODIMM x 2, Up to 16 GB
- Three Independent Display: LVDS, VGA, HDMI, DP
- SATA 6.0 Gb/s x 4
- USB 3.0 x 4, USB 2.0 x 6
- PCI-E2.0[x4] x 1, Full-size Mini-Card with Default mSATA x 1, Half-size Mini-Card x 1
- DC 12~24V
- Low Profile



Rear Panel I/O Ports

USB	USB 3.0 x 4
Display I/O	HDMI x 1, DP x 1
Audio I/O	Mic-in x 1, Line-out x 1
LAN I/O	LAN (RJ-45) port x 2
Serial Port	—
PS/2 Port	—
Others	DC Jack x 1

Internal I/O Connectors

Storage	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, Full Size Mini-Card (mSATA) x 1
USB	USB 2.0 (2x5PIN, 2.00mm) x 3 ports support additional 6 USB
Display I/O	VGA x 1, LVDS connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1
Audio I/O	AAFP x 1, Speaker x 1, DMIC (optional) x 1
Serial Port	Boxer header for COM (RS-232) x 2
PS/2 Port	PS/2 Keyboard Mouse 6 PIN Connector x 1
Parallel Port	—
DIO	Digital I/O header x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1
Others	Front Panel connector x 1, Chassis Intrusion x 1, CMOS jumper x 1

OS

OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 32/64-bit, Linux Fedora
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Packing List

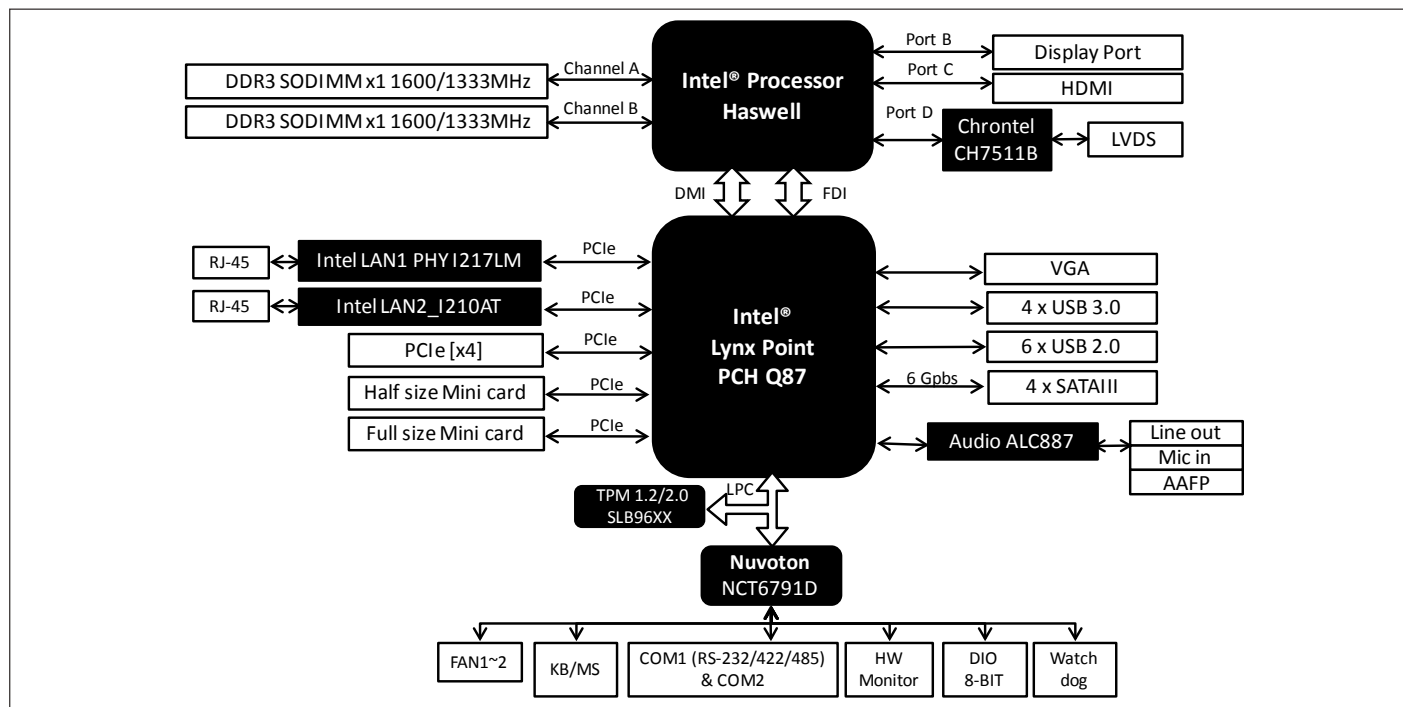
- SATA Cable
- SATA Power Cable
- I/O Shield
- Product CD
- EMB-Q87A

Optional Accessories

Part Number	Description
1255901201	Power Adapter
1759200172	CPU Cooler (2-Ball, Screw with Retention Plate)
175921156B	CPU Cooler (2-Ball, Push-pin Type)
1701160201	VGA Cable (200MM, p=2.00mm)
Cooler-65W-01	CPU Cooler
1709100201	USB 2.0 Cable (10P, 200MM, p=2.00mm, w/ bracket)
1701100206	COM Cable (200MM, p=2.00mm)
1700060152	PS/2 Cable (6P, 150mm, P=2.0mm)
1702150300	SATA Power Cable, 4P, 2.54mm
ADAPTER_18W	DELTA, AOP-180MB FB

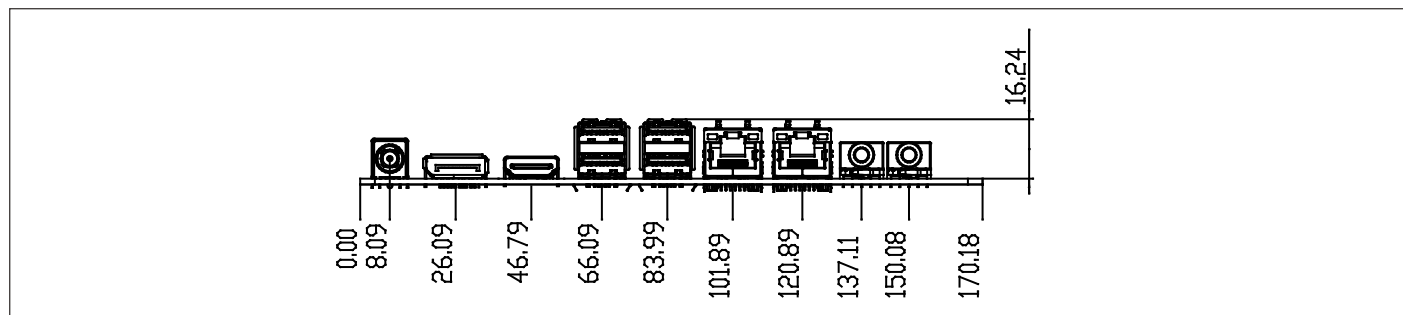
EMB-Q87A

Block Diagram



Dimension

Unit: mm



Order Information

Part Number	CPU	RAM	Fan/Fanless	Display	LVDS	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	TPM	Temp.
EMB-Q87A-B10	Socket	SODIMM x 2	Fan	VGA, HDMI, DP, LVDS	SATA3 x 4, Full size Mini-Card (mSATA)	Dual Channel 18/24-bit	GbE x 2	USB 3.0 x 4, USB 2.0 x 6	2	—	PCIe[x4] x 1, Full size Mini-Card x 1, Half size Mini-Card x 1	12V~24V DC	—	32°F ~ 140°F (0°C ~ 60°C)