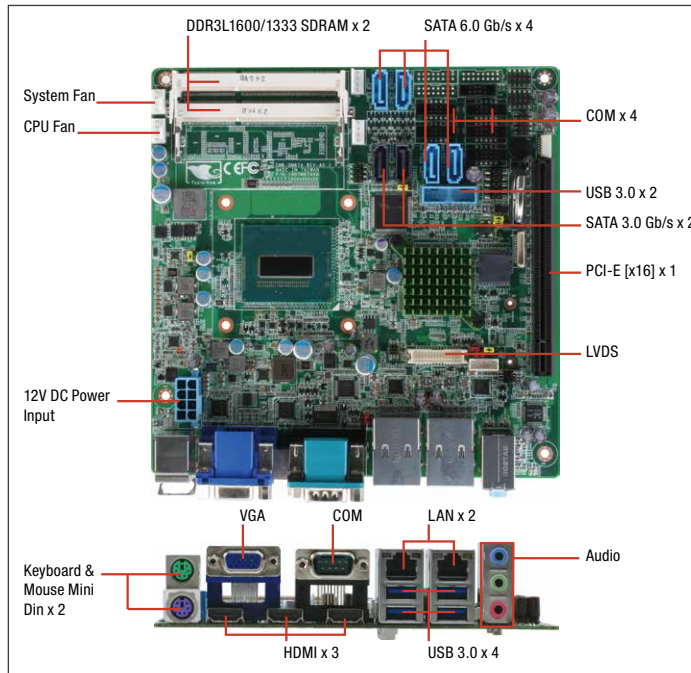


Embedded Motherboard with Onboard Intel® 4th Generation BGA 1364 Processor



## Specifications

System	
Processor	On board Intel® 4th generation BGA 1364 Processor
Chipset	Intel® QM87
Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3L 1600/1333, up to 16GB
Graphics	Intel® HD Graphics
I/O Chipset	Fintek F81866D-I
Ethernet	Intel® I217-LM / Realtek RTL 8111E, Gigabit LAN x 2
Audio	Realtek® ALC992/886/662
TPM	Infineon SLB9635TT 1.2(Optional)
Expansion Slots	PCIe [x16] x 1, Mini-PCIe x 1
BIOS	AMI BIOS - 128MB ROM
H/W Monitor	Supports System temperature, Voltage, and Cooling fan status monitoring
WatchDog Timer	System Reset: 1~255 steps programmable
Smart Fan Control	CPU Fan/Chassis Fan
Wake On LAN/ PXE	Yes
Power State	S3,S4,S5
Graphics	
Graphics Chipset	Intel® Core™i7/i5/i3 + QM87
Graphics Multi Display	HDMIx3, HDMIx2+VGA, HDMIx2+LVDS, HDMI+VGA+LVDS
VGA	1
DVI	—
HDMI	1
Display Port	—
LVDS	1
eDP	—
Backlight Control	Voltage/PWM
Environment & Power & ME	
Battery	Lithium Battery
Power Requirement	12V DC
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Operating Humidity	0% ~ 90% R/H, non-condensing
Certificate	CE/FCC
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
Weight	1.32 lb(0.6 kg)
MTBF (Hours)	106,000
Rear Panel I/O Ports	
USB	USB 3.0 x 4
Display I/O	HDMI x 3, VGA x 1

## Features

- Onboard Intel® 4th Generation BGA 1364 Processor
- 204-pin DDR3L 1600/1333 MHz SDRAM x 2, Up to 16 GB
- HDMI x 3, VGA, 24-bit Dual-Channel LVDS
- Audio Jack x 3 with BTX Type (Mic-in, Line-in, Line-out)
- LAN 1 : Intel® I217-LM Gigabit Ethernet  
LAN 2 : Realtek RTL 8111E Gigabit Ethernet
- SATA 6.0 Gb/s x 4, SATA 3.0 Gb/s x 2, Support RAID 0,1,5,10
- PCI-E[x16] x 1, Mini-PCIe x 1, COM x 5



Audio I/O	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2
Serial Port	RS-232/422/485 x 1
PS/2 Port	Mini-Din PS/2 K/B and Mouse x 1
Others	—
Internal I/O Connectors	
Storage	SATA 6.0 Gb/s x 4, SATA 3.0 Gb/s x 2, Support RAID 0,1,5,10
USB	USB 3.0 x 2, USB 2.0 x 4
Display I/O	LVDSx 1
Audio I/O	—
Serial Port	RS-232 x 4
PS/2 Port	—
Parallel Port	—
DIO	8-bit programmable (4-in/4-out)
FAN	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1
Power	8-pin connector x 1
Others	—
OS	
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora

## Packing List

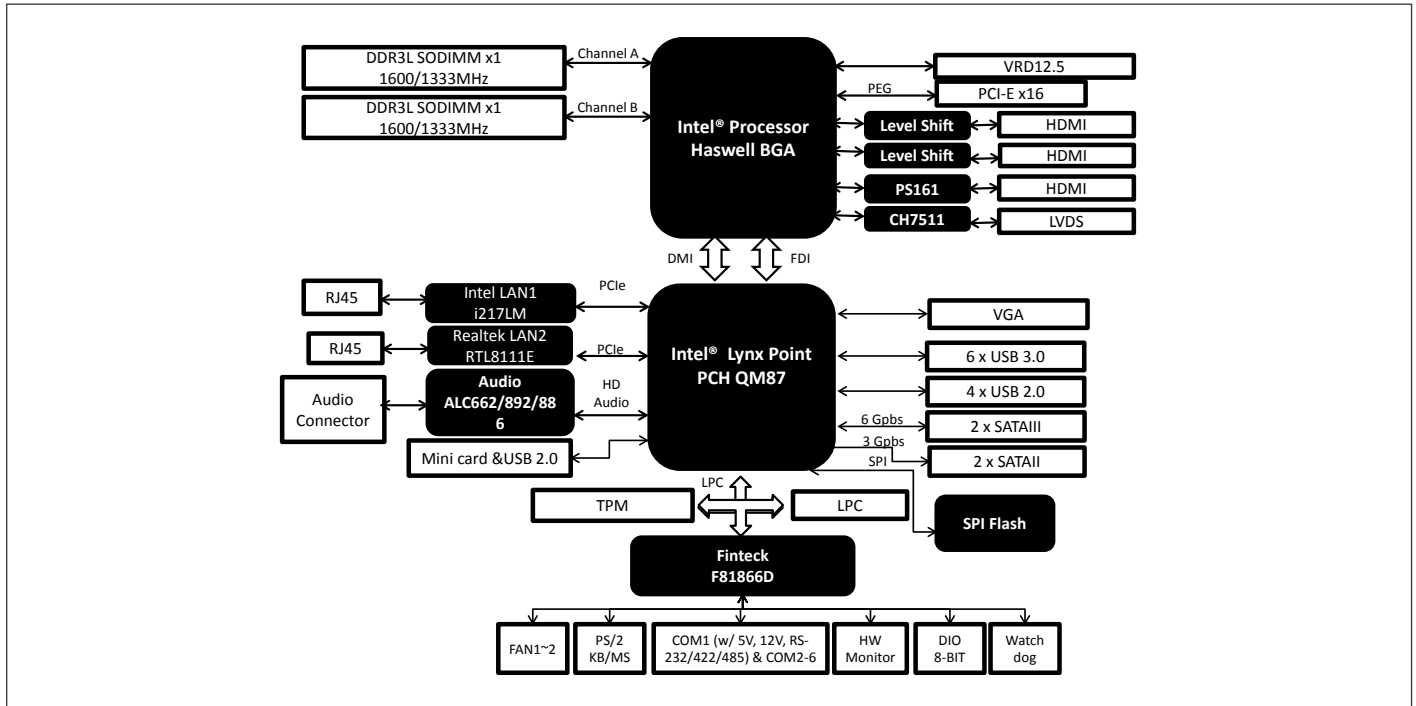
- **M20QM87000**  
(TF)Metal, Sus, I/O Shield, Rev.0.0, EMB-QM87, Northern Queen, 60038-1
- **1709070800**  
(TF)SATA CABLE, 7P Pitch 1.27mm, 80cm, w/Lock
- **1702151201**  
(TF)Power Cable, 4P 2.5mm Housing, 15P SATA (F), 12cm, for FWS-2150
- **9657666600**  
(TF)Accessory, for All Series Jumper
- **17592QM871**  
(TF)CPU Cooler, FAN+Heat Sink, 4P, 60\*60\*26.5mm, for GENE-QM87, COOLJAG, JACDD04A-3-2300
- **Product DVD**
- **EMB-QM87A**

## Optional Accessories

- **1709070800**  
(TF)SATA CABLE, 7P Pitch 1.27mm, 80cm, w/Lock
- **1702151201**  
(TF)Power Cable, 4P 2.5mm Housing, 15P SATA (F), 12cm, for FWS-2150
- **9657666600**  
(TF)Accessory, for All Series Jumper
- **1709100201**  
(TF)USB Cable, 20cm 2.0mm, w/ bracket
- **1701100206**  
(TF)Flat Cable, 9P DB 9P Male, 10P 2.00mm Pitch Housing, 20cm
- **1700190450**  
(TF)USB 3.0 Cable, 2 PORTS USB 3.0, to 19P, w/ bracket, 450mm, ASUS

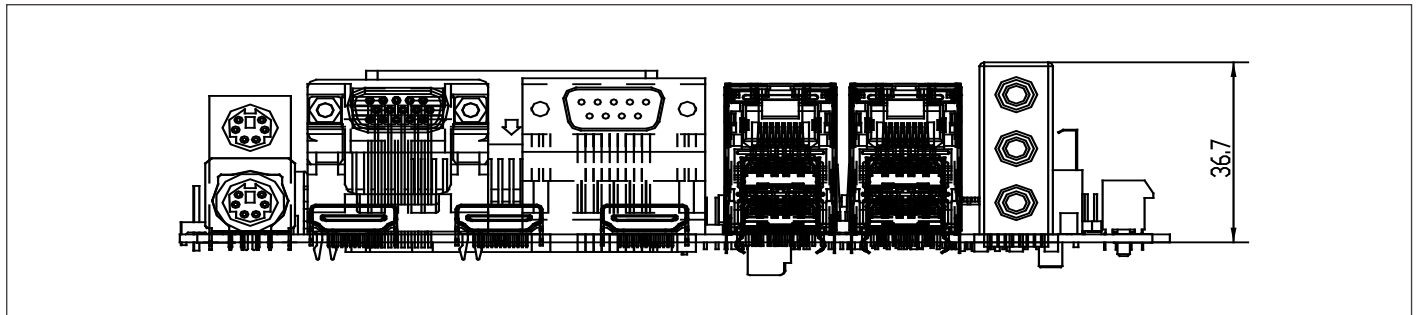
# EMB-QM87A

## Block Diagram



## Dimension

Unit: mm



## Order Information

Part number	CPU	RAM	Fan/Fanless	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	TPM	Temp.
EMB-QM87A-A10	i7-4700EQ	DDR3L 16GB	Fan	VGA/LVDS/HDMI	SATA2 x 2, SATA3 x 4	GbE x 2	USD3.0 x 6, USB 2.0 x 4	4	1	PCIe [x16] x 1, mPCIe x 1	+12V DC	-	32°F ~ 140°F (0°C ~ 60°C)
EMB-QM87A-A10-01	i5-4400E	DDR3L 16GB	Fan	VGA/LVDS/HDMI	SATA2 x 2, SATA3 x 4	GbE x 2	USD3.0 x 6, USB 2.0 x 4	4	1	PCIe [x16] x 1, mPCIe x 1	+12V DC	-	32°F ~ 140°F (0°C ~ 60°C)
EMB-QM87A-A10-02	i3-4100E	DDR3L 16GB	Fan	VGA/DVI-D/HDMI	SATA2 x 2, SATA3 x 4	GbE x 2	USD3.0 x 6, USB 2.0 x 4	4	1	PCIe [x16] x 1, mPCIe x 1	+12V DC	-	32°F ~ 140°F (0°C ~ 60°C)