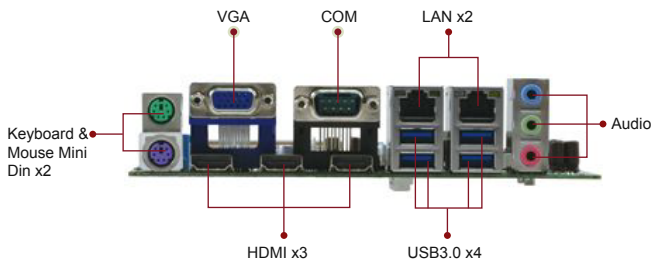
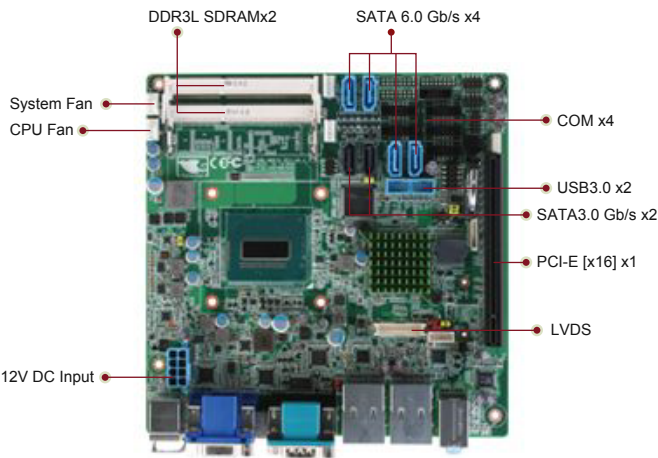


# Onyx Single Board Computer Unit

# EMB-QM87A

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



## 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

## Specifications

### Main Specifications

Processor	Onboard Intel® 4th Generation BGA 1364 Processor
Form Factor	Mini-ITX
System Memory	204-pin Dual-Channel DDR3L SDRAM x 2, Up to 16 GB
Chipset	Intel® QM87
H/W Status Monitoring	Supports System temperature, Voltage, and Cooling fan monitoring
Expansion Interface	PCI-E[x16] x 1, Mini-PCIe x 1
BIOS	AMI BIOS - 128 MB ROM
Wake on LAN	Yes
Watchdog Timer	System Reset: 1~255 steps programmable

### I/O

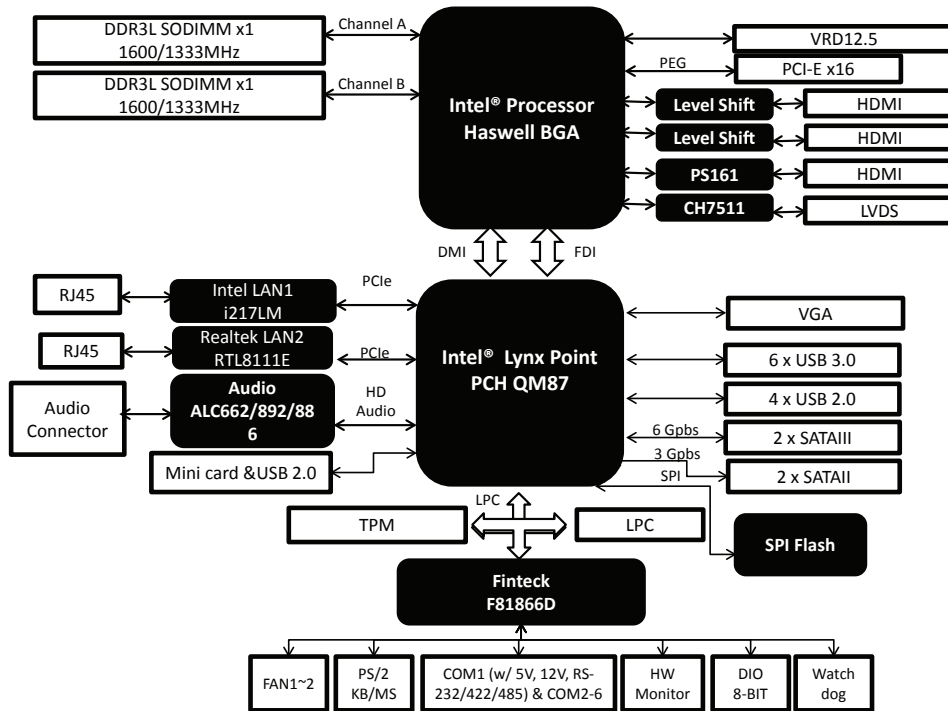
USB	USB 3.0 x 6, USB 2.0 x 4
Serial Port	RS-232 x 4, RS-232/422/485 x 1
Ethernet	LAN 1: Intel® I217-LM Gigabit Ethernet LAN 2: Realtek RTL 8111E Gigabit Ethernet
Storage	SATA 6.0 Gb/s x 4, SATA 3.0 Gb/s x 2, Support RAID 0,1,5,10
Audio	Line-in, Mic-in, Line-out
Digital I/O	8-bit programmable(4-in/4-out)

### Mechanical and Environmental

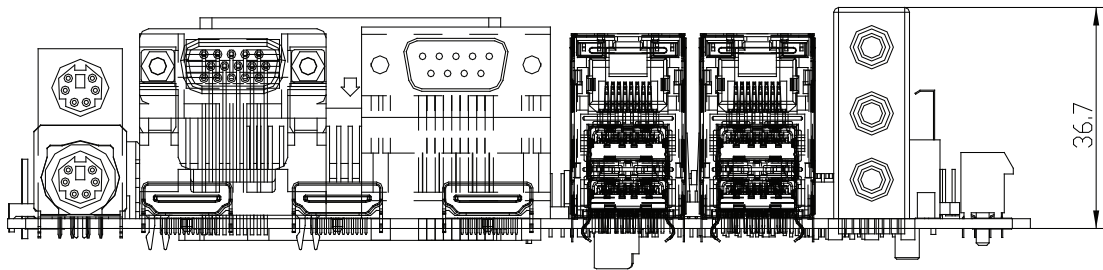
Power Consumption	Intel® Core™ i7-4700EQ 3.40 GHz, 4.23A@ +12V/Full loading 50.5W
Power Requirement	+12V 8-pin connector x 1
Power Compliance	Compliant with EuP / ErP
Power State	CPU Fan / Chassis Fan
Operating Humidity	0% ~ 90% R/H, non-condensing
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Gross weight	1.32 lb (0.6 kg)
Dimensions(W x D x H)	6.7" x 6.7" (170 mm x 170 mm)
Smart Fan Control	CPU Fan / Chassis Fan

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

## Block Diagram



## Dimension / Unit: mm



## Ordering Information

Part Number	CPU	RAM	Fan/Fanless	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Temp.
EMB-QM87A-A10	Intel® Core™ i7-4700EQ	SODIMM	Fan	HDMI, VGA, LVDS	SATA 3 x 4, SATA 2 x 2	GbE x 2	USB 3.0 x 6 USB 2.0 x 4	4	1	PCI-E[x16] x 1, Mini-PCIe x 1	+12V/DC	0°C~60°C
EMB-QM87A-A10-01	Intel® Core™ i5-4400E	SODIMM	Fan	HDMI, VGA, LVDS	SATA 3 x 4, SATA 2 x 2	GbE x 2	USB 3.0 x 6 USB 2.0 x 4	4	1	PCI-E[x16] x 1, Mini-PCIe x 1	+12V/DC	0°C~60°C