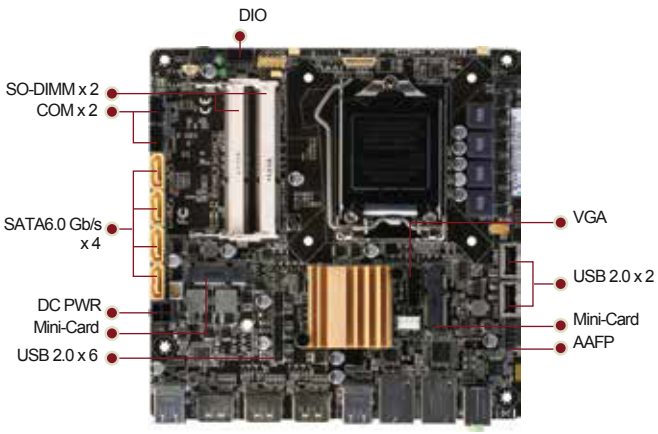
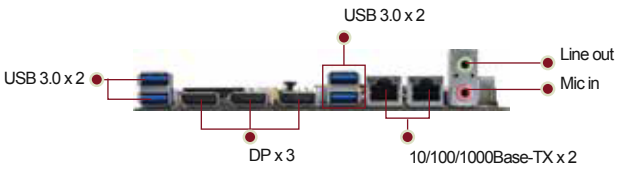
Onyx Single Board Computer Unit

EMB-Q87B

Intel® 4th Gen Core™ i Series Processor with 12V, 15~24V Wide Power Input Range





Features

- Intel® 4th Generation Core™ i Series 22nm Processor
- DDR3 1333/1600 MHz SODIMM x 2, Up to 16 GB
- Three independent Display: VGA, DP x 3
- SATA 6.0 Gb/s x 4
- USB 3.0 x 4, USB 2.0 x 8
- Full-size Mini-Card with Optional mSATA x 1, Half-size Mini-Card with Optional mSATA x 1
- DC 12V, 15~24V

Specifications

Main Specifications

Processor	LGA 1150 Socket For Intel® 4th Generation Core™ i Series 22nm Processor, Max. 65W TDPs
Form Factor	20mm Thin Mini-ITX
System Memory	SO-DIMM x 2, Max.16 GB, DDR3 1333/1600 MHz Non-ECC, Dual-channel
Chipset	Intel® Q87 Express, I/O Nuvoton NCT6791D
H/W Status Monitoring	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
Expansion Interface	Full/ Half-size Mini-Card (PCIe or mSATA select by Jumper ; default: mSATA 6.0 Gb/s) x 1, Half-size Mini-Card (PCIe or mSATA select by Jumper ;default: PCIe +USB) x 1
Operating System	Windows 7 32/64 bit, Windows 8 32/64 bit, Linux Fedora
BIOS	128Mbit Flash ROM, AMI BIOS
Wake on LAN	Yes (WOL / PXE)
Watchdog Timer	1~255 step by software program
TPM	Infineon SLB9655
Power State	S3, S4, S5

I/O

USB	USB 3.0 x 4, USB 2.0 x 8 (6 ports PIN and 2 ports vertical)
Serial Port	COM (RS-232) x 2
Ethernet	Intel® PHY I217LM Giga LAN (vPro) x 1, Intel® I210AT Giga LAN x 1
Storage	SATA 6.0 Gb/s x 4, 4 pin SATA power (5V, 12V @3A)
Audio	Realtek® ALC887 (2ch audio codec), Mic-in, Line-out
Display Chipset	Intel® HD Graphics
Display I/O	DP x 3, VGA x 1
Multi Display	VGA,DP,VGA+DP,DP+DP,VGA+DP+DP, DP+DP+DP
VGA	Up to 1920 x 1200 @60 Hz
Display Port	Up to 3840 x 2160 @60 Hz, with Digital Audio
DIO	8 bit Digital I/O x 1 (In/Out programmable)
PS/2 Port	PS/2 x 1 for keyboard / Mouse
Fan	CPU Fan connector(4-pin) x 1, Chassis Fan connector (4-pin) x 1

Mechanical and Environmental

Battery	Lithium battery
Power Requirement	12V, 15~24V wide-range voltage input DC jack, Note: Please don't use Adjustable Power Supply
Power Compliance	Compliant with EuP / ErP
Operating Humidity	0% ~ 90% RH, non-condensing
Operating Temperature	32°F ~140°F (0°C ~ 60°C)
Storage Temperature	-40 °F ~ 185 °F (-40 °C ~ 85 °C) by E3815
Gross weight	1.1 lb (0.5 kg)
Dimensions(W x D x H)	6.7"x 6.7" (170mmx170mm)
MTBF (Hours)	—

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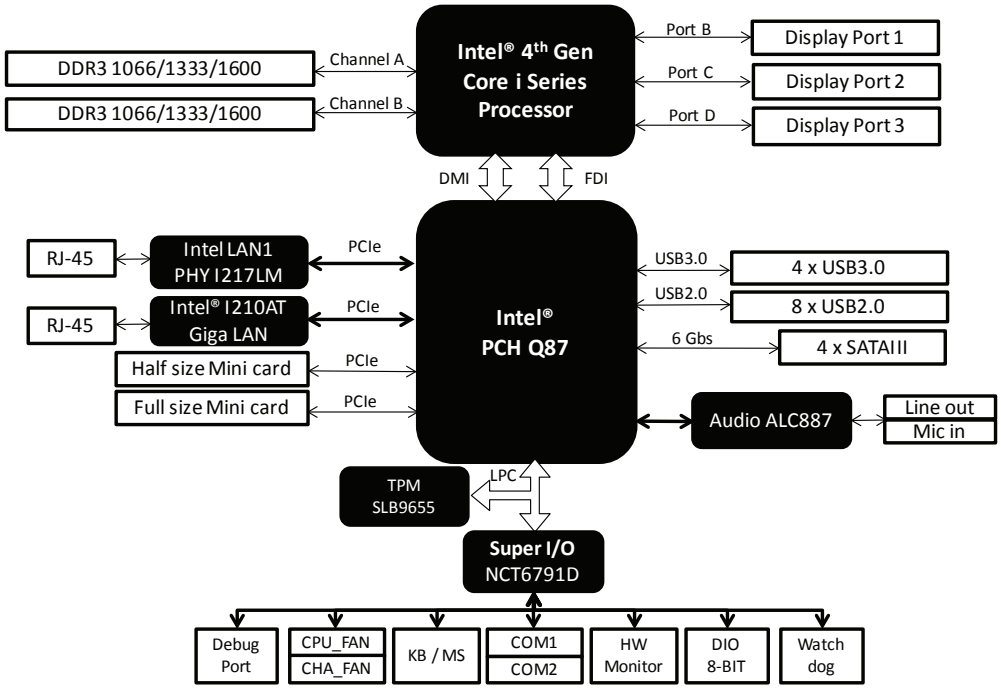
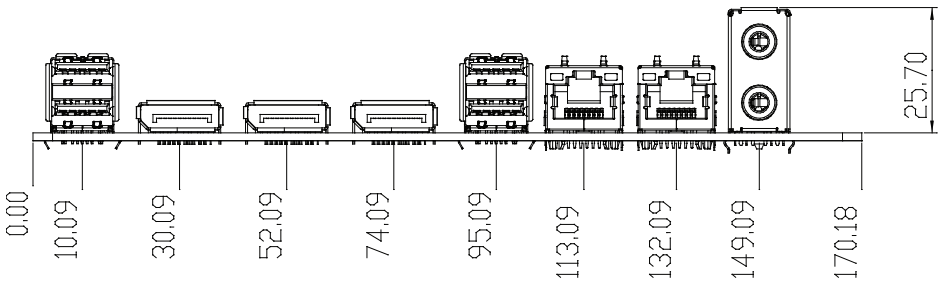
Block Diagram



Dimension / Unit: mm



Ordering Information

Part Number	CPU	RAM	Fan/Fanless	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	TPM	Temp.
EMB-Q87B-A10	Socket	SODIMM x 2	Fan	DP x 3	SATA 3, Full size Mini-Card (Default: mSATA, Jumper Selection) x 1 Half size Mini-Card (Default: PCI-E x 1 & USB, Jumper Selection) x 1	GbE x 2	USB3.0 x 4 UBS2.0 x 8	1	1	Full size Mini-Card x 1, Half-Size Mini-Card x 1	12V, 15~24VDC	Onboard	0°C ~ 60°C