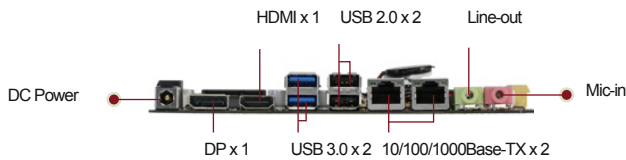
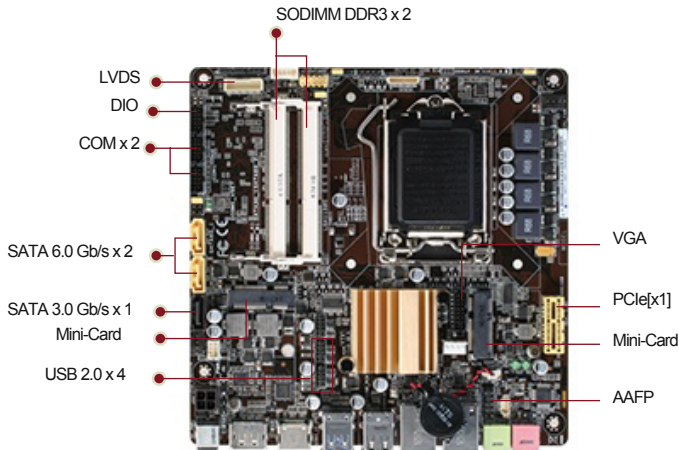


Onyx Single Board Computer Unit

EMB-H81B

Thin Mini-ITX Embedded Motherboard with Intel® 4th Generation Core™ i Series Processor



Features

- Intel® 4th Generation Core™ i Series 22nm Processor
- Intel® H81
- DDR3 1333/1600 MHz SODIMM x 2, Up to 16 GB
- Dual Independent Display: LVDS, VGA, HDMI, DP
- SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 1
- USB 3.0 x 2, USB 2.0 x 6
- PCI-E2.0 [x1] x 1, Full Mini-Card (mSATA) x 1, Half Mini-Card x 1

Specifications

Main Specifications

Processor	Intel® 4th Gen Core™ i Series 22nm, LGA 1150 Socket Max. 65W TDP
Form Factor	Mini ITX
System Memory	Dual-Channel DDR3L 1333/1600 MHz SODIMM, up to 16 GB
Chipset	Intel® H81
H/W Status Monitoring	Supports CPU Temperature Monitoring.
Expansion Interface	PCI-E2.0[x1] x 1, Half-size Mini-Card (PCI-E) x 1, Full/Half-size Mini-Card (with SATA 3.0 Gb/s) x 1
BIOS	64Mbit Flash ROM, AMI BIOS
Wake on LAN	Yes (WOL / PXE)
Watchdog Timer	1~255 step by software program
MS Windows	Windows 7 32-bit/64-bit, Windows 8 32-bit/64-bit
Linux	Fedora

I/O

USB	USB 3.0 x 2 (Rear IO), USB 2.0 x 6 (2 rear, 4 at mid board)
Serial Port	RS-232 x 1 (mid board), RS-232/422/485 x 1, supports optional 5V/12V/RI (mid board)
Ethernet	Realtek PCIe GB LAN 8111G x 2
Storage	SATA 6 Gb/s x 2, SATA 3 Gb/s x 1, SATA power x 1
Display I/O	LVDS x 1, HDMI x 1, DP x 1, VGA x 1
Audio	Realtek® ALC887 with Amp. Mic-in, Line-out, AAFP
Graphics Engine	Intel® HD Graphics
VGA	Up to 1920 x 1200 @60 Hz
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, w/ Digital Audio
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, w/ Digital Audio
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
LAN I/O	Realtek PCIe GB LAN 8111G, RJ-45 x 2
PS/2 Port	Keyboard / Mouse with PS/2 for pin header x 1
DIO	8 bit Digital I/O x 1 (In/Out programmable)
FAN	CPU Fan connector x 1, Chassis Fan connector x 1

Mechanical and Environmental

Power Consumption	Compliant with EuP / ErP
Power Requirement	12V, 15~24V +/-5%, Note: Please use fixed voltage power supply
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Gross weight	1.1 lb (0.5 kg)
Dimensions(W x D x H)	6.7" x 6.7" (170mmx170mm)
MTBF (Hours)	282,050

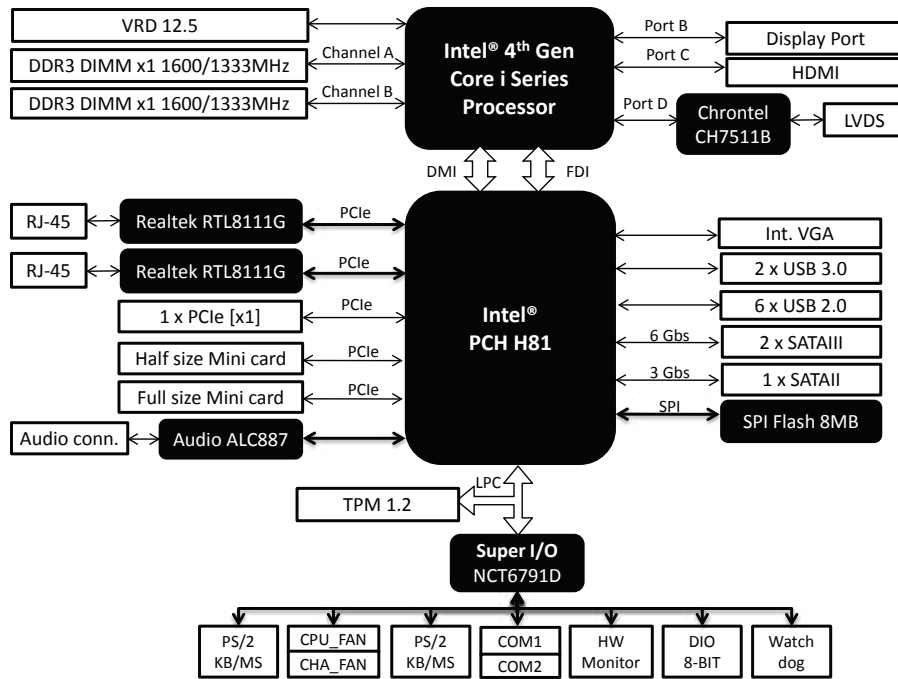


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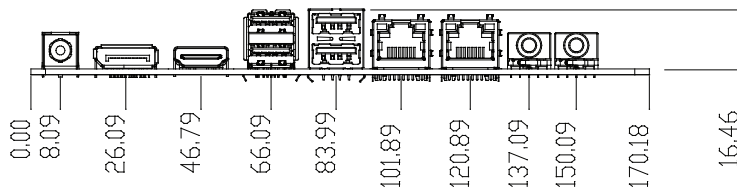
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Block Diagram



Dimension / Unit: mm



Ordering Information

Part Number	CPU	RAM	Fan/Fanless	Display	Storage	LVDS	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	TPM	Temp.
EMB-H81B-A10	Socket	SODIMM x2	Fan	VGA, HDMI, DP, LVDS	SATA 3 x 2, SATA 2 x 1, Full-Size Mini-Card x1 (mSATA)	Dual Channel 18/24-bit	GbE x 2	USB3.0 x 2, USB2.0 x 6	1	1	PCI-E [x1] x 1, Half-Size Mini-Card (PCI-E + USB) x 1	12V, 15~24VDC	On board	0°C~60°C