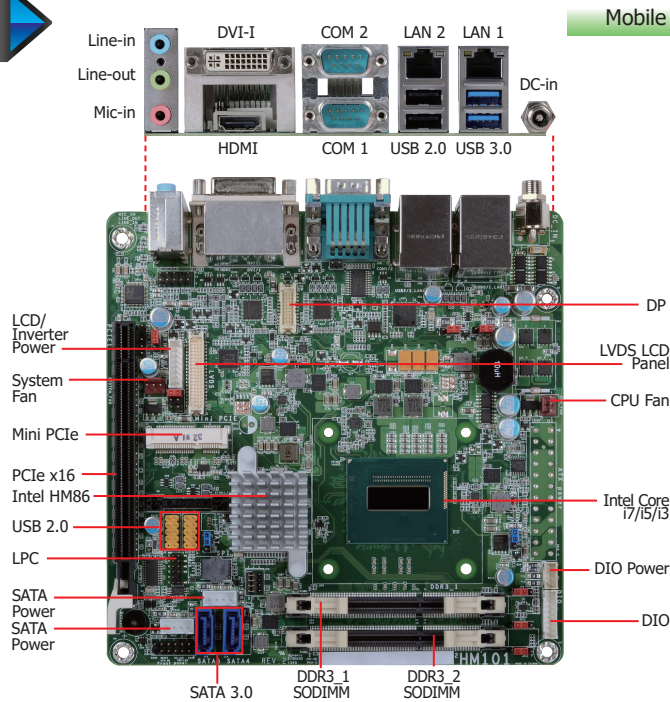


# HM101/HM103-HM86

HM86

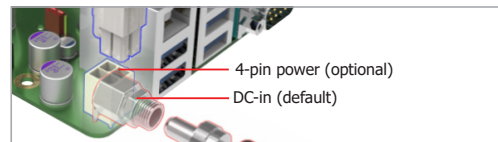


## Features

MEMORY	2 DDR3L SODIMM up to 16GB
EXPANSION	1 PCIe x16 1 Mini PCIe
DISPLAY OUTPUTS	1 HDMI, 1 DVI-I, 1 LVDS, 1 DP
LAN	2 LAN
COM	2 COM
USB	8 USB: 2 USB 3.0, 6 USB 2.0
STORAGE	2 SATA 3.0
DIO	4-bit input and 4-bit output GPIO



## Power Connector

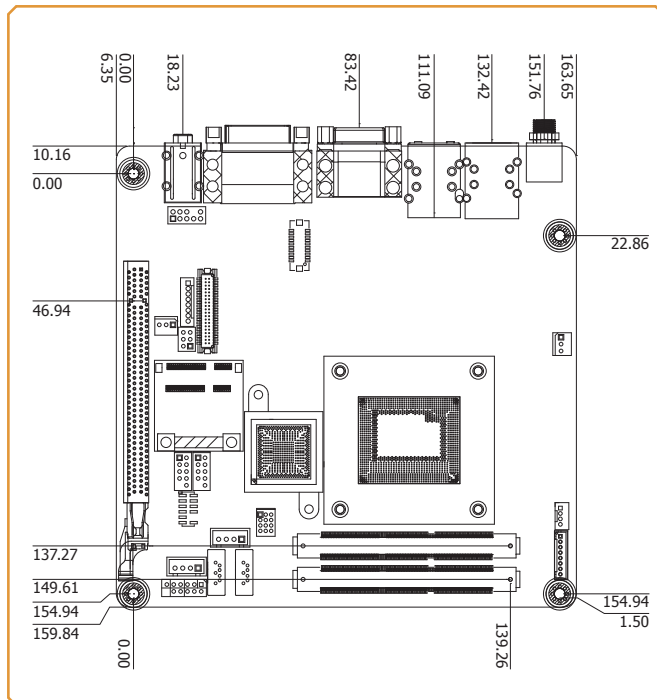


\* The photos above refer to HM101-HM86.

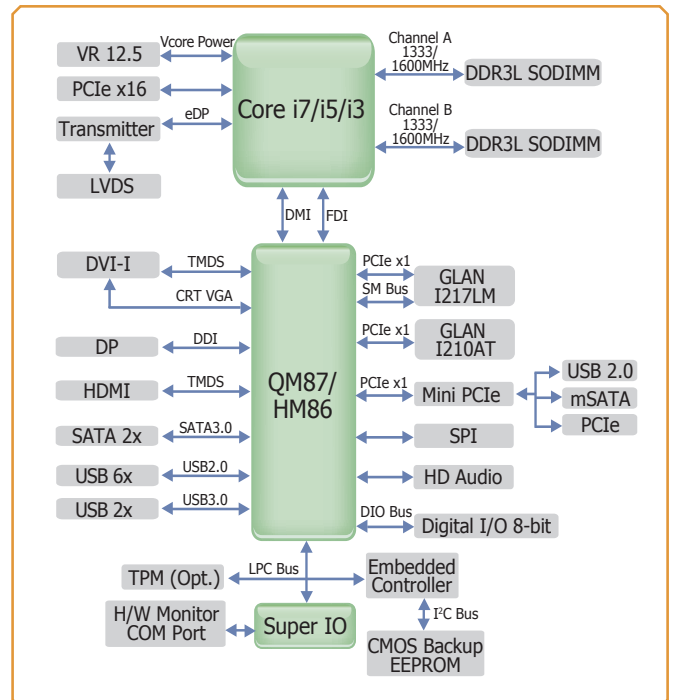
Model Name	Power
HM101-HM86	12V DC-in
HM103-HM86	19~24V DC-in



## Mechanical Drawing



## Block Diagram



# HM101/HM103-HM86

## ► Specifications \* Optional and is not supported in standard model. Please contact your sales representative for more information.

### PROCESSOR

- 4th generation Intel® Core™ processors
- BGA 1364 packaging technology
- 22nm process technology
- Please refer to the *Ordering Information* below

### CHIPSET

- Intel® HM86 Express Chipset

### SYSTEM MEMORY

- Two 204-pin DDR3L SODIMM sockets
- Supports DDR3L 1333/1600MHz
- Supports up to 16GB system memory
- Supports dual channel memory interface
- DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3L DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC

### EXPANSION SLOTS

- 1 PCIe x16 Gen 3 slot (PCIe 3.0)
- 1 Mini PCIe slot
  - Supports USB and PCIe signals
  - Supports mSATA
  - Supports half size Mini PCIe card

### ONBOARD GRAPHICS FEATURES

- Intel® HD Graphics 4600
- Display ports: 1 HDMI, 1 DVI-I, 1 LVDS, 1 DP
- HDMI: resolution up to 4096x2304 @ 24Hz or 2560x1600 @ 60Hz
- DVI-I: resolution up to 1920x1200 @ 60Hz
- LVDS: NXP PTN3460, 24-bit, dual channel, resolution up to 1920x1200 @ 60Hz
- DP: resolution up to 3840x2160 @ 60Hz
- Intel® Clear Video Technology
- DirectX Video Acceleration (DXVA) support for accelerating video processing
- Supports DirectX 11.1, OpenGL 4.0, OpenCL 1.2

### ONBOARD AUDIO FEATURES

- Realtek ALC886 5.1-channel High Definition Audio
- S/PDIF audio interface

### ONBOARD LAN FEATURES

- Intel® I210 PCI Express Gigabit Ethernet controller
- Intel® I217LM Gigabit Ethernet Phy
- Integrated 10/100/1000 transceiver
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

### SERIAL ATA (SATA) INTERFACE

- 2 SATA 3.0 ports with data transfer rate up to 6Gb/s
  - SATA port 4 provides adequate space for SATA DOM
- Integrated Advanced Host Controller Interface (AHCI) controller

### TRUSTED PLATFORM MODULE (TPM)\*

- Provides a Trusted PC for secure transactions
- Provides software license protection, enforcement and password protection

### REAR PANEL I/O PORTS

- 1 12V (HM101) or 19~24V (HM103) DC-in jack or 4-pin power connector\*
- 2 DB-9 RS232 serial ports
- 1 HDMI port
- 1 DVI-I port
- 2 RJ45 LAN ports
- 2 USB 2.0 ports
- 2 USB 3.0 ports
- Line-in, line-out and mic-in jacks

## ► Ordering Information

Model Name	Processor	Memory	HDMI	DVI-I	LVDS	RS232	Power	Thermal Temperature
HM101-HM86D-4402E	Intel® Core™ i5-4402E, 3M Cache, 1.6GHz (2.7GHz), 25W	2 SODIMM	1	1	1	2	12V DC-in	Cooler 0°C to 60°C
HM101-HM86D-4100E	Intel® Core™ i3-4100E, 3M Cache, 2.4GHz, 37W	2 SODIMM	1	1	1	2	12V DC-in	Cooler 0°C to 60°C
HM101-HM86D-4102E	Intel® Core™ i3-4102E, 3M Cache, 1.6GHz, 25W	2 SODIMM	1	1	1	2	12V DC-in	Cooler 0°C to 60°C
HM101-HM86D-2000E	Intel® Celeron® 2000E, 2M Cache, 2.2GHz, 37W	2 SODIMM	1	1	1	2	12V DC-in	Cooler 0°C to 60°C
HM101-HM86D-2002E	Intel® Celeron® 2002E, 2M Cache, 1.5GHz, 25W	2 SODIMM	1	1	1	2	12V DC-in	Cooler 0°C to 60°C
HM103-HM86D-4402E	Intel® Core™ i5-4402E, 3M Cache, 1.6GHz (2.7GHz), 25W	2 SODIMM	1	1	1	2	19~24V DC-in	Cooler 0°C to 60°C
HM103-HM86D-4100E	Intel® Core™ i3-4100E, 3M Cache, 2.4GHz, 37W	2 SODIMM	1	1	1	2	19~24V DC-in	Cooler 0°C to 60°C
HM103-HM86D-4102E	Intel® Core™ i3-4102E, 3M Cache, 1.6GHz, 25W	2 SODIMM	1	1	1	2	19~24V DC-in	Cooler 0°C to 60°C
HM103-HM86D-2000E	Intel® Celeron® 2000E, 2M Cache, 2.2GHz, 37W	2 SODIMM	1	1	1	2	19~24V DC-in	Cooler 0°C to 60°C
HM103-HM86D-2002E	Intel® Celeron® 2002E, 2M Cache, 1.5GHz, 25W	2 SODIMM	1	1	1	2	19~24V DC-in	Cooler 0°C to 60°C

## ► Packing List

- 1 HM101/HM103 motherboard
- 1 Serial ATA data with power cable: A81-002013-000G
- 1 I/O shield: A49-HD1010-000G
- 1 Heat sink with fan: A71-108001-000G

### I/O CONNECTORS

- 2 connectors for 4 external USB 2.0/1.1 ports
- 1 LVDS LCD panel connector
- 1 LCD/inverter power connector
- 1 DP connector
  - EXT-DP riser card supports 1 external DP port\*
- 1 4-bit input and 4-bit output Digital I/O connector
- 1 Digital I/O power connector
- 1 front audio connector for line-out and mic-in jacks
- 1 S/PDIF connector
- 2 Serial ATA connectors
- 2 Serial ATA power connectors
- 1 LPC connector
- 1 chassis intrusion connector
- 1 front panel connector
- 2 fan connectors

### BIOS

- AMI BIOS
  - 64Mbit SPI BIOS

### ENERGY EFFICIENT DESIGN

- Supports ErP Lot6 power saving\*
- Supports ACPI
- System Power Management
- Wake-On-Events include:
  - Wake-On-USB KB/Mouse
  - Wake-On-LAN
  - RTC timer to power-on the system
- AC power failure recovery

### DAMAGE FREE INTELLIGENCE

- Monitors CPU/system temperature and overheat alarm
- Monitors VCore/12V/5V/DDR voltages and failure alarm
- Monitors CPU/system fan speed and failure alarm
- Read back capability that displays temperature, voltage and fan speed
- Watchdog timer function

### POWER CONSUMPTION

- TBD

### OS SUPPORT

- Windows XP Professional x86 & SP3 (32-bit) (limited function)
- Windows 7 Ultimate x86 & SP1 (32-bit)
- Windows 7 Ultimate x64 & SP1 (64-bit)
- Windows 8 Enterprise x86 (32-bit)
- Windows 8 Enterprise x64 (64-bit)

### TEMPERATURE

- Operating: 0°C to 60°C
- Storage: -20°C to 85°C

### HUMIDITY

- 5% to 90%

### DIMENSIONS

- Mini-ITX form factor
- 170mm (6.7") x 170mm (6.7")

### CERTIFICATION

- CE, FCC Class B, RoHS, UL

## ► Optional Items

- USB port cable: 332-253010-026G
- Serial ATA data with power cable: A81-002013-000G
- I/O shield: A49-HD1010-000G
- Power adapter (100W, 12V, Level 6) : 671-110002-100G (HM101)
- Power adapter (120W, 19V, Level 6) : 671-110003-100G (HM103)
- EXT-DP riser card: 770-EXTDP1-000G