

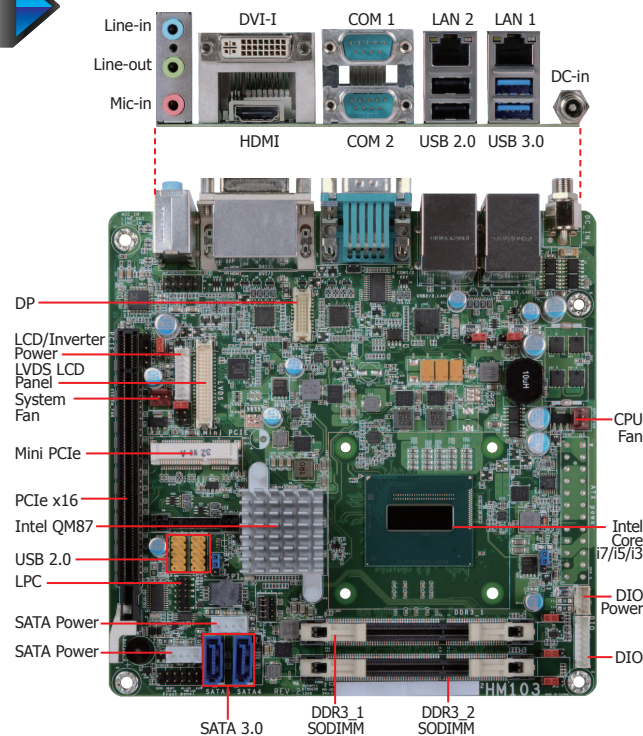


4th Gen Intel® Core™
Mini-ITX

HM103-QM87

Mobile

QM87



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



3 Modules for Additional COM/Parallel Ports (via the LPC connector)

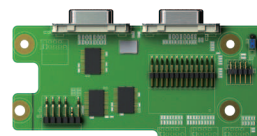


EXT-6C1PR

- 6 COM
- 1 Parallel

EXT-4C1PR

- 4 COM
- 1 Parallel



EXT-2C1PR

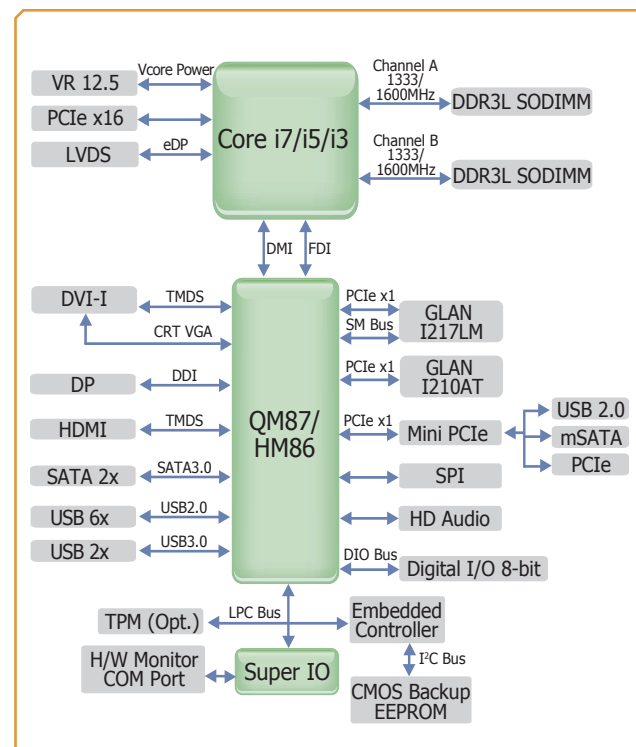
- 2 COM
- 1 Parallel

Note: To support the additional COM/Parallel ports, please contact your sales representative for the LPC module and its BIOS.

Mechanical Drawing



Block Diagram



HM103-QM87

► Specifications

PROCESSOR

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

CHIPSET

- Intel® QM87 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: HDMI, DVI-I, LVDS, 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, OpenGL3.2, 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 with iAMT9.0 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
- Supports RAID 0/1
- Supports Intel® Smart Response Technology

INTEL ACTIVE MANAGEMENT TECHNOLOGY (AMT)

- Supports iAMT9.0
- Out-of-band system access
- Remote troubleshooting and recovery
- Hardware-based agent presence checking
- Proactive alerting
- Remote hardware and software asset tracking

TRUSTED PLATFORM MODULE (TPM) - optional

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

REAR PANEL I/O PORTS

- 1 19~24V DC-in jack
- 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

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
- 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 (optional)
- Supports ACPI
- System Power Management
- Wake-On-Events include:
 - Wake-On-PS/2 KB/Mouse
 - 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 8 Enterprise x86 (32-bit)
- Windows 8 Enterprise x64 (64-bit)
- Windows 7 Ultimate x86 & SP1 (32-bit)
- Windows 7 Ultimate x64 & SP1 (64-bit)
- Windows XP Professional x86 & SP3 (32-bit)
- Windows XP Professional x64 & SP2 (64-bit)
- (based on Intel's Windows XP support list)*

TEMPERATURE

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

HUMIDITY

- 10% to 90%

DIMENSIONS

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

► Ordering Information

Model Name	Chipset	Processors
HM103	QM87	4700EQ
		4700EQ: Intel® Core™ i7-4700EQ, 6M Cache, up to 3.4 GHz, 47W
		4400E: Intel® Core™ i5-4400E, 3M Cache, up to 3.3 GHz, 37W
		4402E: Intel® Core™ i5-4402E, 3M Cache, up to 2.7 GHz, 25W
		4100E: Intel® Core™ i3-4100E, 3M Cache, up to 2.4 GHz, 37W
		4102E: Intel® Core™ i3-4102E, 3M Cache, up to 1.6 GHz, 25W

► Packing List

• 1 HM103 motherboard
• 1 Serial ATA data cable
• 1 I/O shield
• 1 DVD
• 1 QR (Quick Reference)

► Optional Items

• USB port cable
• Serial ATA data cable
• Serial ATA power cable
• 1 LPC module kit
• I/O shield
• Power adapter (100W, 12V) : 671-110001-100G