



Features:

- 2 DDR3 SODIMM up to 16GB
- Two independent displays: DP++ + VGA + DVI-I
- DP++ resolution up to 3840x2160 @ 60Hz
- Slot expansion: 1 PCIe x16 Gen 3 (PCIe 3.0)
- Rich I/O: 2 Intel GbE, 4 COM, 2 USB 3.0, 7 USB 2.0
- 12V or 19~24V DC input
- Small form factor
- Supports mSATA & Mini-PCIe cards



DDR3



2 Displays



mSATA



USB 3.0



DC-in



USB Drive Security

Product available until Q3 2020

Specification

PROCESSOR

LGA 1150 socket for:
 - 4th Generation Intel® Core™ processors (22nm process technology)
 Intel® Core™ i7-4770TE (8M Cache, up to 3.3 GHz); 45W
 Intel® Core™ i5-4590T (6M Cache, up to 3.0 GHz); 35W
 Intel® Core™ i5-4570TE (4M Cache, up to 3.3 GHz); 35W
 Intel® Core™ i3-4350T (4M Cache, 3.1 GHz); 35W
 Intel® Core™ i3-4340TE (4M Cache, 2.6 GHz); 35W
 Intel® Core™ i3-4330TE (4M Cache, 2.4 GHz); 35W
 Intel® Pentium® G3320TE (3M Cache, 2.3 GHz); 35W
 Intel® Celeron® G1820TE (2M Cache, 2.2 GHz); 35W

CHIPSET

Intel® H81 Express Chipset

BIOS

AMI BIOS
 - 64Mbit SPI BIOS

SYSTEM MEMORY

Two 204-pin DDR3 SODIMM sockets
 Supports DDR3 1333/1600MHz
 Supports up to 16GB system memory
 Supports dual channel memory interface
 DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 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 full size Mini PCIe card

ONBOARD GRAPHICS FEATURES

Intel® HD Graphics
 Display ports: 1 DP, 1 DVI-I (DVI-D signal), 1 VGA
 Supports dual independent displays
 DP: supports DP++, resolution up to 3840x2160 @ 60Hz
 DVI-D, VGA: resolution up to 1920x1200 @ 60Hz
 Supports 6 Graphics Execution Units (EUs)
 Intel® Clear Video Technology
 DirectX Video Acceleration (DXVA) support for accelerating video processing

ONBOARD AUDIO FEATURES

Realtek ALC888 5.1-channel High Definition Audio

ONBOARD LAN FEATURES

Intel® I210 PCI Express Gigabit Ethernet controller
 Intel® I217 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

REAR PANEL I/O PORTS

1 12V (MBU4108) or 19~24V (MBU4109) DC-in jack or 4-pin power connector*
 1 DB-9 RS232 serial port
 1 VGA port
 1 DP port (default) or 1 mini-DIN-6 PS/2 keyboard/mouse port*
 1 DVI-D port
 2 RJ45 LAN ports
 2 USB 2.0 ports
 2 USB 3.0 ports
 Mic-in, line-in and line-out jacks

Power Connector



4-pin power (optional)
 DC-in (default)

I/O CONNECTORS

2 connectors for 4 external USB 2.0 ports
 1 connector for 1 external USB 2.0 port or 1 vertical USB 2.0/1.1 port*
 3 connectors for 3 external serial ports (2.0mm pitch)
 - 1 RS422/485
 - 2 RS232
 1 8-bit Digital I/O connector
 1 front audio connector for line-out and mic-in jacks
 1 LPC connector
 2 Serial ATA connectors
 2 Serial ATA power connectors
 1 chassis intrusion connector
 1 front panel connector
 2 fan connectors

ENERGY EFFICIENT DESIGN

Supports ErP Lot6 power saving*
 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
 CPU stopped clock control
 AC power failure recovery

DAMAGE FREE INTELLIGENCE

Monitors CPU/system temperature and overheat alarm
 Monitors Vcore/+5V/+12V/+3.3V/3VSB/VBAT
 Monitors CPU/system fan speed and failure alarm
 Read back capability that displays temperature, voltage and fan speed
 Watchdog timer function

POWER CONSUMPTION

MBU4108: 35.28W with i7-4770TE at 2.3GHz and 2x 8GB DDR3 SODIMM

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

10% to 90%

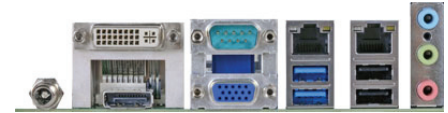
DIMENSIONS

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

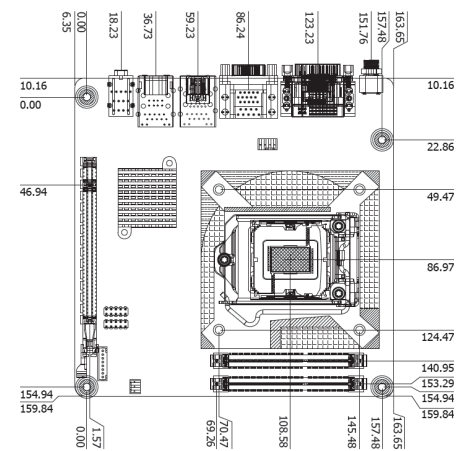
CERTIFICATION

CE, FCC Class B, RoHS

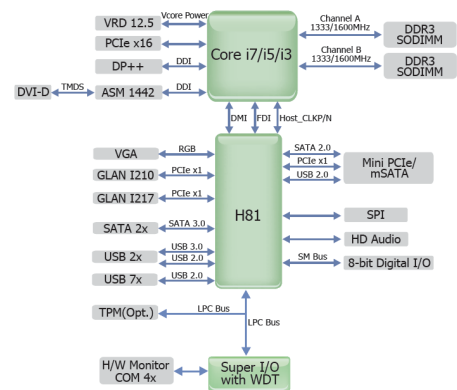
Rear I/O



Mechanical Drawing



Block Diagram



ORDERING INFORMATION

Model Name	Memory	VGA	DVI-D	DP++	LAN	RS232	RS422/485	Power	Thermal	Temperature
MBU4108	2 SODIMM	1	1	1	2	3	1	12V DC-in	Active	0°C to 60°C
MBU4109	2 SODIMM	1	1	1	2	3	1	19~24V DC-in	Active	0°C to 60°C

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

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