



## Features

- Onboard 6th Gen Intel® Xeon® E3 / Core™ i7/i5/i3 / Celeron® QC/DC processors, up to 3.7GHz
- 2x DDR4 SO-DIMM, Max. 32GB, ECC compatible
- Intel® Processor integrated graphics device, supports DVI-D, HDMI (2.0), DisplayPort and 24-bit dual-channel LVDS
- 2x Intel® Gigabit LAN
- 4x USB 2.0, 6x USB 3.0, 6x COM, 4x SATAIII
- 1x PCI-E(x16), 2x Mini PCI-E, 1x mSATA, 1x M.2
- Watchdog timer, Digital I/O, iAMT (11.0), TPM (2.0), vPro, iSMART 3.0

## Specifications

CPU Socket	BGA1440 for 6th Gen Intel® Xeon® E3/ Core™ i7/i5/i3 / Celeron® QC/ DC processors, up to 3.7GHz
System Memory	2x DDR4 SO-DIMM, Max. 32GB (support ECC by CPU SKUs)
System Chipset	MI990VF series: Intel® CM236 PCH MI990EF series: Intel® HM170 PCH
BIOS	AMI
Watchdog Timer	256 levels
SSD	1x mSATA via Mini PCI-E (Thru SATA III) 1x M.2 slot (Thru SATA III & PCI-E)
H/W Monitor	Yes
Expansion Slot	1x PCI-E(x16), 2x Mini PCI-E, 1x M.2
VGA Controller	6th Gen Intel® Xeon® / Core™ i7/ i5/ i3 / Celeron® processor integrated
VGA Memory	Shared memory
Display Interface	Supports DVI-D, HDMI (2.0), DisplayPort and 24-bit dual-channel LVDS
LAN Controller	MI990VF series: Intel® I219LM Gigabit LAN PHY MI990EF series: Intel® I219V Gigabit LAN PHY Intel® I211AT PCI-E Gigabit LAN (as 2nd LAN)
LAN Connector	2x RJ-45 on board
I/O Chipset	Fintek F81866AD-I 5x RS232 1x RS232/422/485 (jumperless selection)
USB	6x USB 3.0 on board 4xs USB 2.0 via pin-header
Serial ATA	MI990VF series: 4x SATA III MI990EF series: 2x SATA III
Audio	Intel® CM236 / HM170 PCH built-in HD audio + Realtek ALC892 codec
Others	Digital I/O(4-in/4-out), RAID, TPM(2.0), iAMT(11.0), iSMART
Dimensions	170mm x 170mm (6.7" x 6.7")
Max. Power Requirement	Intel® Core™ i5-6400EQ 2.4GHz w/ 2x 8GB DDR4-2133 +12V: 2.84A; +5V: 1.45A; +5VSB: 0.058A; +3.3V: 0.52A
Operating Temperature	0°C~60°C (32°F~140°F)
Storage Temperature	-20°C~80°C (-4°F~176°F)
Relative Humidity	90% (non-condensing @60°C)

## Ordering Information

MI990VF-X28E	BGA1440 Intel® CM236/ Xeon® E3-1505M v5(2.8GHz) Mini-ITX motherboard w/ DVI-D, HDMI (2.0), DisplayPort, LVDS, dual Gigabit LAN, RAID, iAMT (11.0), TPM (2.0), vPro, iSMART (3.0), CPU cooler on board
MI990VF-6820E	BGA1440 Intel® CM236/ Core™ i7-6820EQ(2.8GHz) Mini-ITX motherboard w/ DVI-D, HDMI (2.0), DisplayPort, LVDS, dual Gigabit LAN, RAID, iAMT (11.0), TPM (2.0), vPro, iSMART (3.0), CPU cooler on board
MI990VF-6440E	BGA1440 Intel® CM236/ Core™ i5-6440EQ(2.7GHz) Mini-ITX motherboard w/ DVI-D, HDMI (2.0), DisplayPort, LVDS, dual Gigabit LAN, RAID, iAMT (11.0), TPM (2.0), vPro, iSMART (3.0), CPU cooler on board
MI990EF-6100E	BGA1440 Intel® HM170/ Core™ i3-6100E(2.7GHz) Mini-ITX motherboard w/ DVI-D, HDMI (2.0), DisplayPort, LVDS, dual Gigabit LAN, RAID, EuP/ErP compliant, iSMART (3.0), CPU cooler on board

## Dimensions and Drawing

