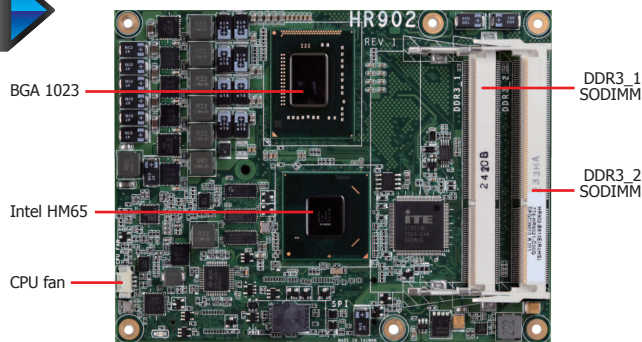




3rd/2nd Gen Intel® Core™
COM Express® Basic

HR902-BL

HM65

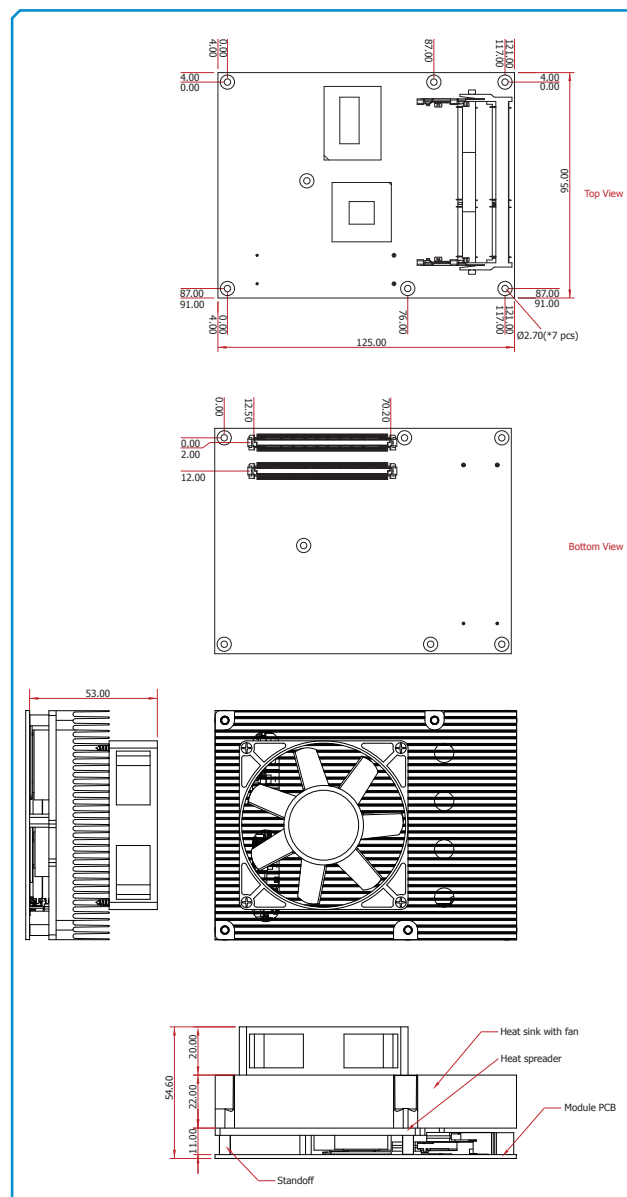


Features

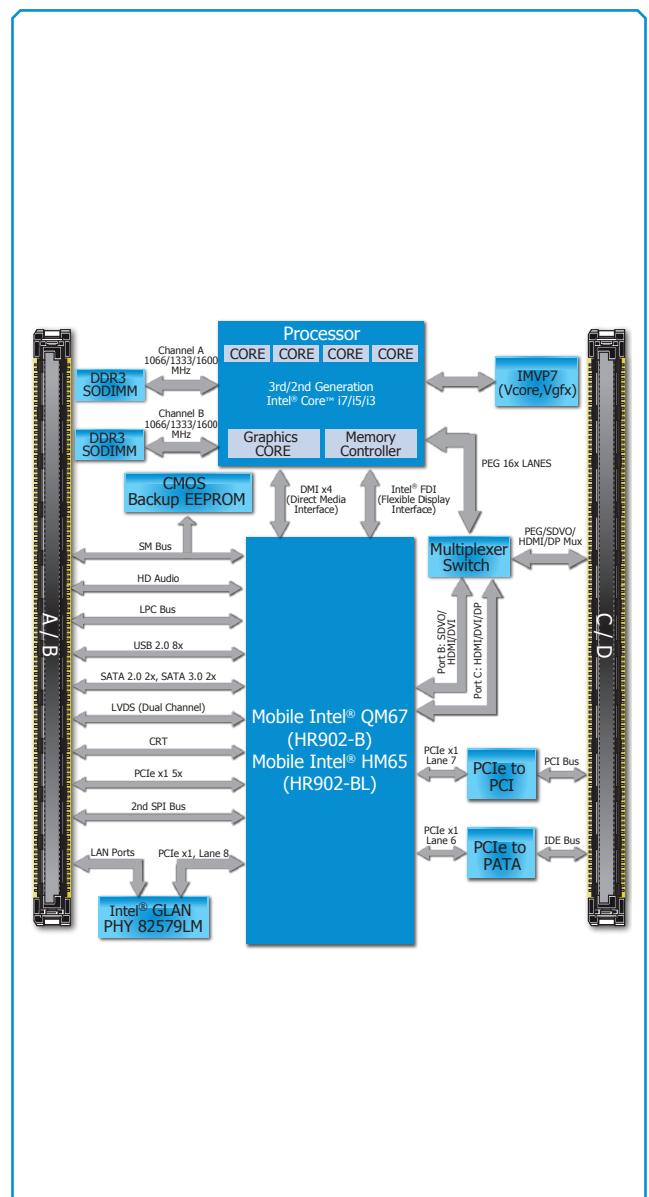
MEMORY	2 DDR3 SODIMM up to 16GB
EXPANSION	1 PCIe x16, 1 PCIe x4 and 1 PCIe x1, 4 PCI 1 LPC, 1 SMBus, 1 IDE 1 VGA, 1 LVDS, 2 DDI (HDMI/DVI/DP/SDVO) 8 USB 2.0 4 SATA: 2 SATA 3.0, 2 SATA 2.0 8-bit DIO
LAN	1 LAN
DIMENSIONS	COM Express® R2.1 Basic, Type 2 95mm x 125mm (3.74" x 4.9")



Mechanical Drawing



Block Diagram



HR902-BL

► Specifications

PROCESSOR

- BGA 1023 packaging technology
 - 3rd generation Intel® Core™ processors (22nm process technology)
 - 2nd generation Intel® Core™ processors (32nm process technology)
- Please refer to the Ordering Information below

CHIPSET

- Intel® HM65 Express Chipset

SYSTEM MEMORY

- Two 204-pin DDR3 SODIMM sockets
- 3rd generation processors
 - Supports DDR3/DDR3L 1333/1600 MHz (i7/i5/i3)
 - Supports DDR3/DDR3L 1067/1333/1600 MHz (i7 Quad Core)
- 2nd generation processors
 - Supports DDR3 1066/1333 MHz (i7/i5/i3/Celeron)
 - Supports DDR3 1066/1333/1600 MHz (i7 Quad Core)
- Supports dual channel memory interface
- Supports up to 16GB system memory
- DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC

ONBOARD GRAPHICS FEATURES

- Intel® HD Graphics 4000 (3rd generation processors)
- Intel® HD Graphics 3000 (2nd generation processors)
- Intel® HD Graphics (Intel® Celeron™ processors)
- Supports LVDS, VGA and DDI interfaces
- VGA: resolution up to 2048x1536 @ 75Hz
- LVDS: Single Channel - 18/24-bit; Dual Channel - 36/48-bit, resolution up to 1920x1200 @ 60Hz
- Digital Display Interfaces: HDMI, DVI, DP or SDVO
- HDMI, DVI, DP, SDVO: resolution up to 1920x1200 @ 60Hz
- Intel® Clear Video Technology
- DirectX Video Acceleration (DXVA) support for accelerating video processing
- Supports DirectX 11/10.1/10/9 and OpenGL 3.0 (3rd generation processors)
- Supports DirectX 10.1/10/9 and OpenGL 3.0 (2nd generation processors)

ONBOARD AUDIO FEATURES

- Supports High Definition Audio interface

ONBOARD LAN FEATURES

- Intel® 82579LM Gigabit Ethernet PHY
- Integrated 10/100/1000 transceiver
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

SERIAL ATA (SATA) INTERFACE

- Supports 4 Serial ATA interfaces
- 2 SATA 3.0 with data transfer rate up to 6Gb/s
- 2 SATA 2.0 with data transfer rate up to 3Gb/s
- Integrated Advanced Host Controller Interface (AHCI) controller

► Ordering Information

	Model Name	Part Number	Description
3rd Gen Processors	HR902-BL3120ME	777-HR9021-500G	Intel® Core™ i3-3120ME, 3M Cache, 2.40 GHz, 35W
	HR902-BL810E	777-HR9021-C00G	Intel® Celeron™ B810E, 2M Cache, 1.6GHz, 35W
2nd Gen Processors	HR902-BL847E	777-HR9021-D00G	Intel® Celeron™ 847E, 2M Cache, 1.1GHz, 17W
	HR902-BL827E	777-HR9021-E00G	Intel® Celeron™ 827E, 1.5M Cache, 1.4GHz, 17W

The following processors will be available upon request. Please contact your sales representative for more information.

	Model Name	Part Number	Description
3rd Gen Processors	HR902-BL3615QE	777-HR9021-000G	Intel® Core™ i7-3615QE, 6M Cache, up to 3.30 GHz, 45W
	HR902-BL3612QE	777-HR9021-100G	Intel® Core™ i7-3612QE, 6M Cache, up to 3.10 GHz, 35W
	HR902-BL3555LE	777-HR9021-200G	Intel® Core™ i7-3555LE, 4M Cache, up to 3.20 GHz, 25W
	HR902-BL3517UE	777-HR9021-300G	Intel® Core™ i7-3517UE, 4M Cache, up to 2.80 GHz, 17W
	HR902-BL3610ME	777-HR9021-400G	Intel® Core™ i5-3610ME, 3M Cache, up to 3.30 GHz, 35W
	HR902-BL3217UE	777-HR9021-G00G	Intel® Core™ i3-3217UE, 3M Cache, 1.60 GHz, 17W
	HR902-BL1020E	777-HR9021-H00G	Intel® Celeron™ 1020E, 2M Cache, 2.20 GHz, 35W
	HR902-BL1047UE	777-HR9021-I00G	Intel® Celeron™ 1047UE, 2M Cache, 1.40 GHz, 17W
2nd Gen Processors	HR902-BL927UE	777-HR9021-J00G	Intel® Celeron™ 927UE, 1M Cache, 1.50 GHz, 17W
	HR902-BL2715QE	777-HR9021-600G	Intel® Core™ i7-2715QE, 6M Cache, up to 3.00 GHz, 45W
	HR902-BL2655LE	777-HR9021-700G	Intel® Core™ i7-2655LE, 4M Cache, up to 2.90 GHz, 25W
	HR902-BL2610UE	777-HR9021-800G	Intel® Core™ i7-2610UE, 4M Cache, up to 2.40 GHz, 17W
	HR902-BL2515E	777-HR9021-900G	Intel® Core™ i5-2515E, 3M Cache, up to 3.10 GHz, 35W
	HR902-BL2310E	777-HR9021-A00G	Intel® Core™ i3-2310E, 3M Cache, 2.10 GHz, 35W
	HR902-BL2340UE	777-HR9021-B00G	Intel® Core™ i3-2340UE, 3M Cache, 1.30 GHz, 17W
	HR902-BL807UE	777-HR9021-F00G	Intel® Celeron™ 807UE, 1M Cache, 1.00 GHz, 10W

► Packing List

- 1 HR902 board
- 1 QR (Quick Reference)
- 1 Drivers/utilities disk

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IDE INTERFACE

- Supports up to two IDE devices
- DMA mode: Ultra ATA up to 100MB/s
- PIO mode: up to 16MB/s

EXPANSION INTERFACES

- Supports 8 USB 2.0 ports
- Supports 1 PCIe x16 interface (multiplex digital display interface)
- Supports 2 DDI (multiplex with PCIe x16)
 - Port B for HDMI/DVI/SDVO
 - Port C for HDMI/DVI/DisplayPort
- Supports 1 PCIe x4 and 1 PCIe x1 (default); or 5 PCIe x1 interfaces
- Supports 4 PCI interfaces (PCI 2.3 interface)
- Supports LPC interface
- Supports SMBus interface
- Supports IDE interface
- Supports 8-bit Digital I/O

DAMAGE FREE INTELLIGENCE

- Monitors CPU temperature and overheat alarm
- Monitors CPU fan speed and failure alarm
- Monitors Vcore/VCCRTC/DDR/+1.05V/VCCSA
- Watchdog timer function

BIOS

- 64Mbit SPI BIOS

OS SUPPORT

- Windows XP Professional x86 & SP3 (32-bit)
- Windows XP Professional x64 & SP2 (64-bit)
- 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

- 0°C to 60°C

HUMIDITY

- 10% to 90%

POWER

- Input: 5VSB (option), 12V, VCC_RTC

PCB

- Dimensions
 - COM Express® Basic
 - 95mm (3.74") x 125mm (4.9")
- Compliance
 - PICMG COM Express® R2.1 basic form factor, Type 2

CERTIFICATION

- CE, FCC Class B, RoHS