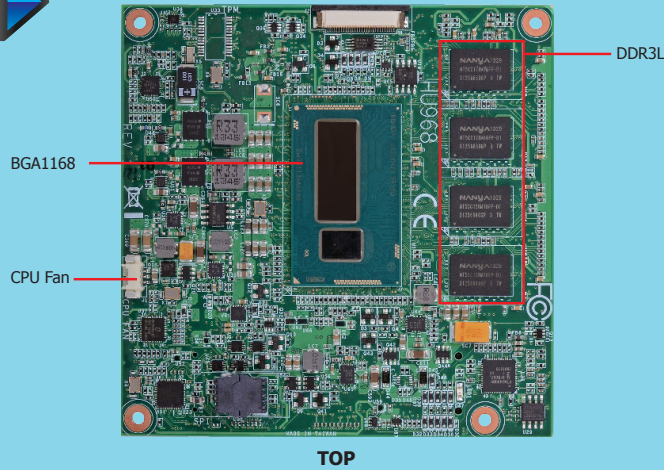
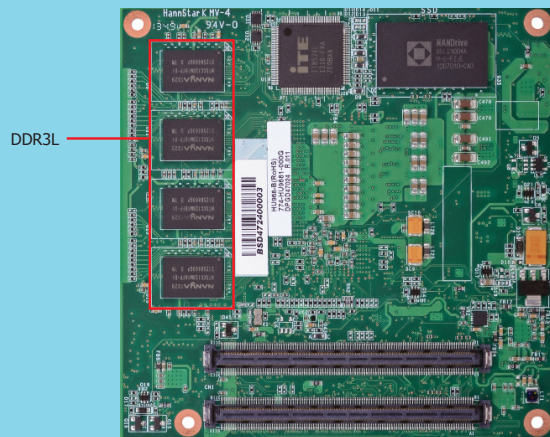


HU968

ULT

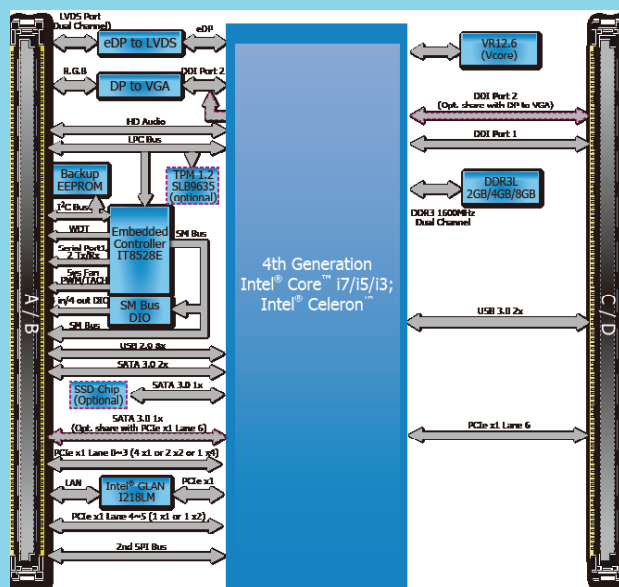


TOP



BOTTOM

Block Diagram

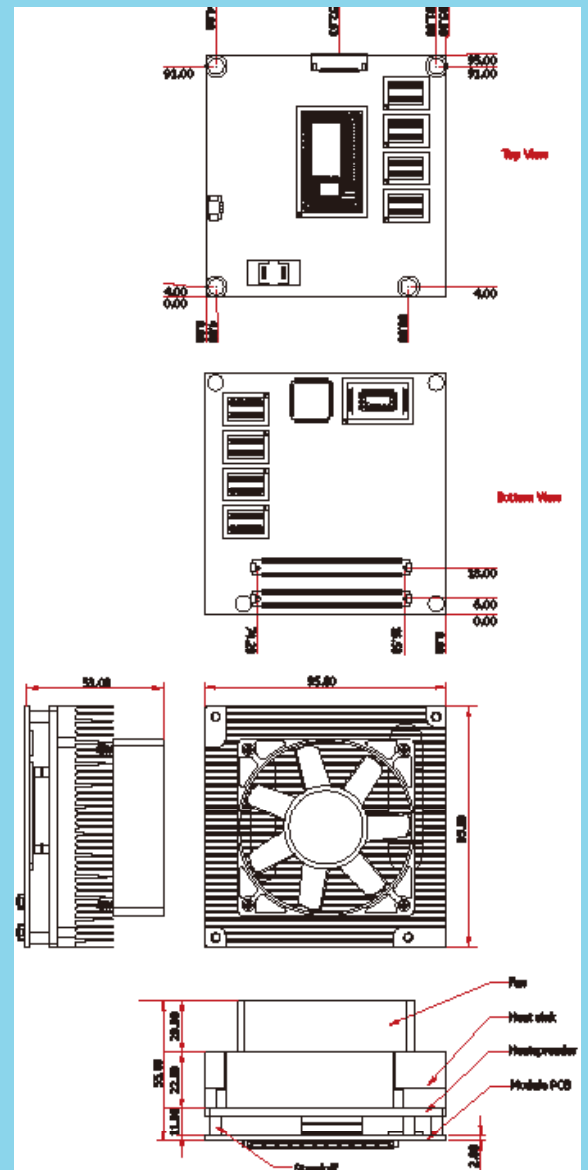


► Features

MEMORY	2GB/4GB/8GB DDR3L memory down
EXPANSION	1 PCIe x4, 1 PCIe x2, 1 PCIe x1
	1 LPC, 1 SMBus, 1 I ² C, 2 serial
	1 VGA, 1 LVDS, 1 DDI (HDMI/DVI/DP)
	10 USB: 2 USB 3.0, 8 USB 2.0
	3 SATA 3.0
	SSD (optional)
	4-bit input and 4-bit output GPIO
LAN	1 LAN
DIMENSIONS	COM Express® R2.1 Compact, Type 6
	95mm x 95mm (3.74" x 3.74")



► **Mechanical Drawing**



HU968

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

PROCESSOR

- 4th generation Intel® Core™ processors
- BGA 1168 packaging technology
- 22nm process technology
- Please refer to the Ordering Information below

SYSTEM MEMORY

- 2GB/4GB/8GB DDR3L memory down
- Supports DDR3L 1600MHz
- Supports dual channel memory interface

ONBOARD GRAPHICS FEATURES

- Intel® HD Graphics GT Series
- Supports VGA, LVDS and DDI interfaces
- VGA: Chronitel CH7517, resolution up to 1920x1200 @ 60Hz
- LVDS: NXP PTN3460, 24-bit, dual channel, resolution up to 1920x1200 @ 60Hz
- Digital Display Interface: HDMI, DVI and DP
- HDMI, DVI: resolution up to 4096x2304 @ 24Hz
- DP: resolution up to 3200x2000 @ 60Hz
- Intel® Clear Video Technology
- Intel® Advanced Vector Extensions 2.0 (Intel® AVX 2.0) Instructions
- Supports DirectX 11.1, OpenGL 4.0, OpenCL 1.2

ONBOARD AUDIO FEATURES

- Supports High Definition Audio interface

ONBOARD LAN FEATURES

- Intel® I218LM with iAMT9.5 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 3 SATA 3.0 with data transfer rate up to 6Gb/s
- - One shares with PCIe Lane 6
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0/1/5
- Supports Intel® Smart Response Technology

SSD*

- 2GB/4GB/8GB/16GB/32GB/64GB
- Write: 30MB/sec (max), Read: 70MB/sec (max)
- SATA to SSD onboard

EXPANSION INTERFACES

- Supports 2 USB 3.0 interfaces
- Supports 8 USB 2.0 interfaces
- Supports 1 PCIe x4; or 2 PCIe x2; or 4 PCIe x1 interfaces
- Supports 1 PCIe x2; or 1 PCIe x1 interface
- Supports 1 PCIe x1 interface (PCIe Lane 6 shares with 1 SATA 3.0 port)
- Supports LPC interface
- Supports SMBus interface
- Supports I²C interface
- Supports 2 serial interfaces (TX/RX)
- Supports 4-bit input and 4-bit output GPIO

► Ordering Information

Model Name	Processor	Memory Down	SSD	Power	Thermal	Temperature
HU968-B24-4650U	Intel® Core™ i7-4650U, 4M Cache, 1.7GHz (3.3GHz), 15W	2GB DDR3L	4GB	ATX/AT	Fan	0°C to 60°C
HU968-B20-4300U	Intel® Core™ i5-4300U, 3M Cache, 1.9GHz (2.9GHz), 15W	2GB DDR3L	None	ATX/AT	Fan	0°C to 60°C
HU968-B20-4010U	Intel® Core™ i3-4010U, 3M Cache, 1.7GHz, 15W	2GB DDR3L	None	ATX/AT	Fan	0°C to 60°C
HU968-B20-2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	2GB DDR3L	None	ATX/AT	Fan	0°C to 60°C
HU968-B24-2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	2GB DDR3L	4GB	ATX/AT	Fan	0°C to 60°C
HU968-B40-4650U	Intel® Core™ i7-4650U, 4M Cache, 1.7GHz (3.3GHz), 15W	4GB DDR3L	None	ATX/AT	Fan	0°C to 60°C
HU968-B40-4300U	Intel® Core™ i5-4300U, 3M Cache, 1.9GHz (2.9GHz), 15W	4GB DDR3L	None	ATX/AT	Fan	0°C to 60°C
HU968-B40-4010U	Intel® Core™ i3-4010U, 3M Cache, 1.7GHz, 15W	4GB DDR3L	None	ATX/AT	Fan	0°C to 60°C
HU968-B40-2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	4GB DDR3L	None	ATX/AT	Fan	0°C to 60°C

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

Model Name	Temperature	Memory	SSD	Processors
HU968	B	2	0	4650U
	B: 0°C to 60°C	2: 2GB 4: 4GB 8: 8GB	0: None 2: 2GB 4: 4GB 8: 8GB 1: 16GB 3: 32GB 6: 64GB	4650U: Intel® Core™ i7-4650U, 4M Cache, up to 3.3 GHz, 15W 4300U: Intel® Core™ i5-4300U, 3M Cache, up to 2.9 GHz, 15W 4010U: Intel® Core™ i3-4010U, 3M Cache, 1.7 GHz, 15W 2980U: Intel® Celeron® 2980U, 2M Cache, 1.6 GHz, 15W

► Packing List

- 1 HU968 board
- 1 QR (Quick Reference)
- 1 DVD
- Heat spreader with heat sink and fan: 761-HU9681-000G

TRUSTED PLATFORM MODULE (TPM)*

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

DAMAGE FREE INTELLIGENCE

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

BIOS

- AMI BIOS
- 64Mbit SPI BIOS

WATCHDOG TIMER

- Software programmable from 1 to 255 seconds

POWER

- Input: 12V, VCC_RTC, 5VSB*

POWER CONSUMPTION

- TBD

OS SUPPORT

- 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)
- Windows 8.1 Enterprise x86 (32-bit)
- Windows 8.1 Enterprise x64 (64-bit)

TEMPERATURE

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

HUMIDITY

- 5% to 90%

MTBF

- 680,852 hrs @ 25°C; 381,340 hrs @ 45°C
- Calculation model: Telcordia Issue 2, Method I Case 3
- Environment: GB, GC – Ground Benign, Controlled

PCB

- Dimensions
- - COM Express® Compact
- - 95mm (3.74") x 95mm (3.74")
- Compliance
- - PICMG COM Express® R2.1, Type 6

► Optional Items

- COM331-B carrier board kit: 770-COM331-000G
- Heat sink with fan: A71-111023-000G