

# MTH968

Intel® Core™ Ultra processors  
COM Express® Compact



DDR5 SODIMM



Front View

DDR5 SODIMM



Intel® Core™ Ultra  
processors

Bottom View

## KEY FEATURES



### DDR5

Dual Channel DDR5  
5600MHz SODIMM up  
to 64GB



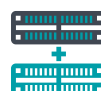
### 4K High Resolution

Supports 4K / 2K reso-  
lution



### Multiple Displays

1 VGA, 1 LVDS/eDP,  
3 DDI



### Multiple Expansion

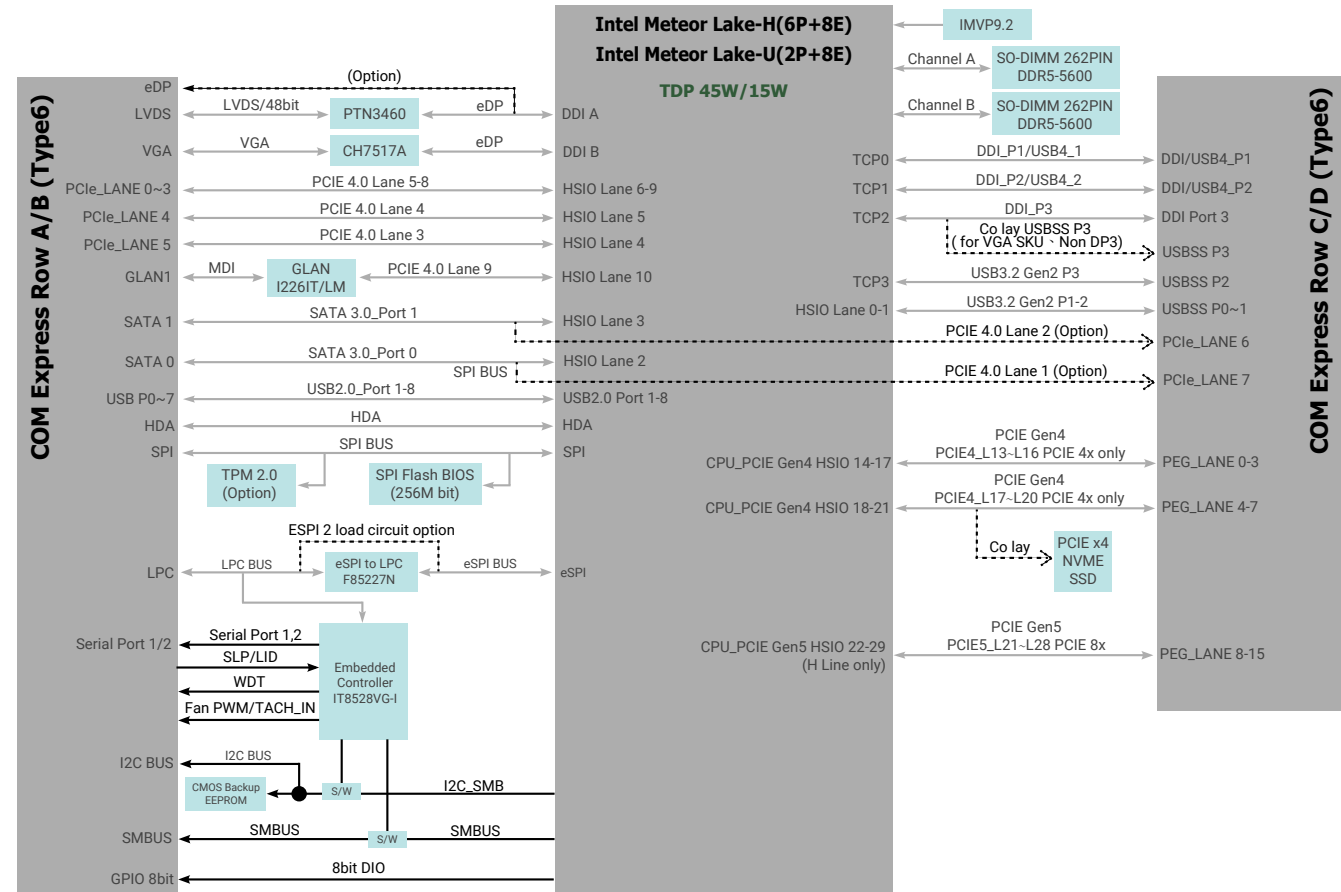
8 PCIe x1, 2 PCIe x4,  
1 PCIe x8, 1 I2C,  
1 SMBus, 1 LPC/eSPI,  
2 UART



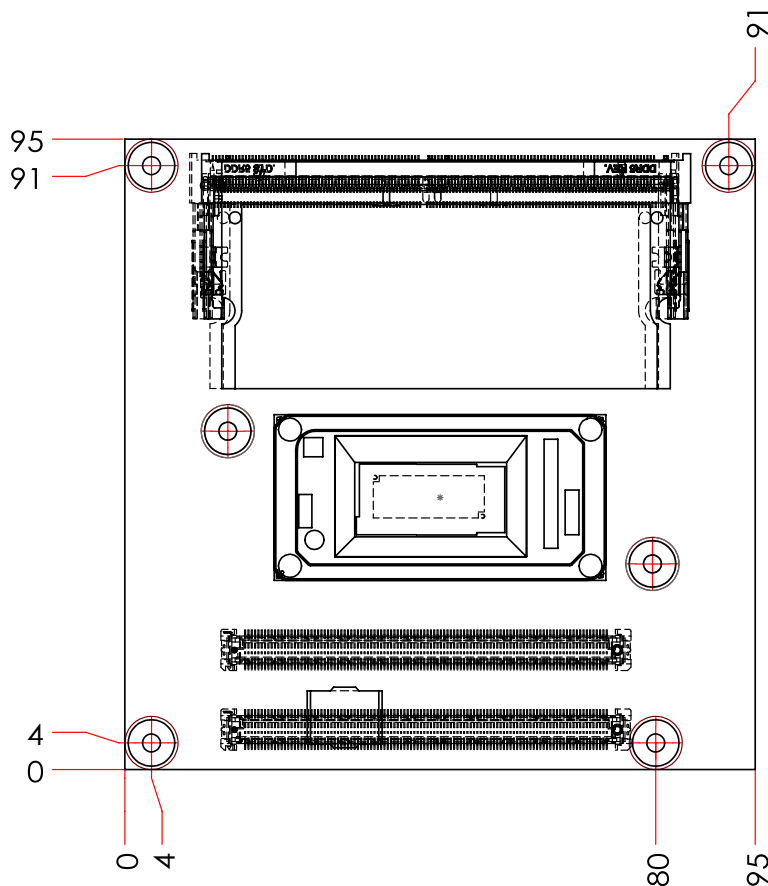
### RICH I/O

1 Intel 2.5GbE,  
2 USB 4.0, 3 USB 3.2,  
8 USB 2.0, 2 SATA 3.0

BLOCK DIAGRAM



MECHANICAL DRAWING



## SPECIFICATION

|                              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM                       | Processor         | Intel® Core™ Ultra Processor (Meteor Lake: U/H-series)<br>Intel® Core™ Ultra 7 165H (6 P-Cores x 1.4 GHz, 8 E-Cores x 0.9 GHz, 24 MB cache, 28W)<br>Intel® Core™ Ultra 7 155H (6 P-Cores x 1.4 GHz, 8 E-Cores x 0.9 GHz, 24 MB cache, 28W)<br>Intel® Core™ Ultra 5 135H (4 P-Cores x 1.7 GHz, 8 E-Cores x 1.2 GHz, 18 MB cache, 28W)<br>Intel® Core™ Ultra 5 125H (4 P-Cores x 1.2 GHz, 8 E-Cores x 0.7 GHz, 18 MB cache, 28W)<br>Intel® Core™ Ultra 7 165U (2 P-Cores x 1.7 GHz, 8 E-Cores x 1.2 GHz, 12 MB cache, 15W)<br>Intel® Core™ Ultra 7 155U (2 P-Cores x 1.7 GHz, 8 E-Cores x 1.2 GHz, 12 MB cache, 15W)<br>Intel® Core™ Ultra 5 135U (2 P-Cores x 1.6 GHz, 8 E-Cores x 1.1 GHz, 12 MB cache, 15W)<br>Intel® Core™ Ultra 5 125U (2 P-Cores x 1.3 GHz, 8 E-Cores x 0.8 GHz, 12 MB cache, 15W) |
|                              | Memory            | Two 260-Pin SO-DIMM up to 64GB<br>Dual Channel DDR5 5600MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                              | BIOS              | AMI BIOS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| GRAPHICS                     | Controller        | Intel Xe LPG graphics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                              | Feature           | DX12, Open GL 4.6, Vulkan 1.2<br><b>HW Decode:</b> MPEG2, AVC/H264, JPEG/MJPEG, HEVC/H265, VP9 and AV1<br><b>HW Encode:</b> AVC/H264, JPEG, HEVC/H265, VP9 and AV1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                              | Display           | 1 x VGA<br>1 x LVDS/eDP (eDP available upon request)<br>3 x DDI (2 DDI option with USB4)<br><br><b>VGA:</b> resolution up to 1920x1200 @ 60Hz<br><b>LVDS:</b> dual channel 24-bit, resolution up to 1920x1200 @ 60Hz<br><b>eDP:</b> resolution up to 4096x2304 @ 60Hz<br><b>HDMI:</b> resolution up to 4096x2160 @ 30Hz<br><b>DP++:</b> resolution up to 4096x2304 @ 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                              | Multiple Displays | VGA + LVDS + 3 DDI<br>VGA + LVDS + 3 DDI (available upon request)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| EXPANSION                    | Interface         | 1 x PCIe x8 (Gen 5) on PEG, H-series only<br>2 x PCIe x4 (Gen4) on PEG<br>8 x PCIe x1 (Gen 4)<br>1 x SMBus<br>1 x SPI<br>2 x UART (TX/RX)<br>1 x LPC (co-lay with eSPI)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| AUDIO                        | Interface         | HD Audio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ETHERNET                     | Controller        | 1 x Intel® I226 series (10/100/1000Mbps/2.5G), co-lay PCIe x1 (available upon request)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| I/O                          | USB               | 2 x USB4, co-lay with DDI<br>4 x USB 3.2 (Gen2, 1 co-lay with DDI)<br>8 x USB 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                              | SATA              | 2 x SATA 3.0 (up to 6Gb/s), co-lay 2 PCIe x1 (available upon request)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                              | NVMe SSD          | 1 x 64GB/128GB/256GB/512GB/1024GB on board SSD (available upon request)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                              | DIO               | 1 x 8-bit DIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| WATCHDOG TIMER               | Output & Interval | System Reset, Programmable via Software from 1 to 255 Seconds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| SECURITY                     | TPM               | Available Upon Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| POWER                        | Type              | 8.5~20V, 5VSB, VCC_RTC (ATX mode)<br>8.5~20V, VCC_RTC (AT mode)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                              | Consumption       | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| OS SUPPORT                   | Microsoft         | Windows 11/10 IoT Enterprise 64-bit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                              | Linux             | Linux                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ENVIRONMENT                  | Temperature       | <b>Operating:</b><br>0°C~60°C (For H-Series Processor)<br>-40°C~85°C (For U-Series Processor)<br><b>Storage:</b><br>-40°C~85°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                              | Humidity          | <b>Operating:</b> 10%~90% RH<br><b>Storage:</b> 10%~90% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                              | MTBF              | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MECHANICAL                   | Dimensions        | COM Express® Compact<br>95mm (3.74") x 95mm (3.74")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                              | Compliance        | PICMG COM Express® R3.1, Type 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| STANDARDS AND CERTIFICATIONS | Certification     | CE, FCC, RoHS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

ORDERING INFORMATION

| Model Name       | P/N              | Processor    | Memory   | LVDS/<br>eDP | LAN/<br>PCIe | SATA/<br>PCIe | TPM | Storage       | Power  | Thermal   | Temp.      |
|------------------|------------------|--------------|----------|--------------|--------------|---------------|-----|---------------|--------|-----------|------------|
| MTH968-BC06-165H | 770-MTH9681-000G | Ultra 7 165H | 2 SODIMM | LVDS         | LAN          | SATA          | Yes | 64GB NVMe SSD | ATX/AT | Cooler    | 0 to 60C   |
| MTH968-BC06-155H | 770-MTH9681-100G | Ultra 7 155H |          | LVDS         |              |               |     | 64GB NVMe SSD |        | Cooler    | 0 to 60C   |
| MTH968-BC00-135H | 770-MTH9681-200G | Ultra 5 135H |          | LVDS         |              |               |     | N/A           |        | Cooler    | 0 to 60C   |
| MTH968-BC00-125H | 770-MTH9681-300G | Ultra 5 125H |          | LVDS         |              |               |     | N/A           |        | Cooler    | 0 to 60C   |
| MTH968-TC00-165U | 770-MTH9681-400G | Ultra 7 165U |          | eDP          |              |               |     | N/A           |        | Heat Sink | -40 to 85C |
| MTH968-TC00-155U | 770-MTH9681-500G | Ultra 7 155U |          | eDP          |              |               |     | N/A           |        | Heat Sink | -40 to 85C |
| MTH968-TC00-135U | 770-MTH9681-600G | Ultra 5 135U |          | eDP          |              |               |     | N/A           |        | Heat Sink | -40 to 85C |
| MTH968-TC00-125U | 770-MTH9681-700G | Ultra 5 125U |          | eDP          |              |               |     | N/A           |        | Heat Sink | -40 to 85C |

PACKING LIST

|             |                 |
|-------------|-----------------|
| · Cooler    | A71-108156-010G |
| · Heat Sink | A71-011101-000G |

OPTIONAL ITEMS

|                            |                 |
|----------------------------|-----------------|
| · Heat Spreader            | TBD             |
| · COM335 Carrier Board Kit | 770-CM3351-000G |