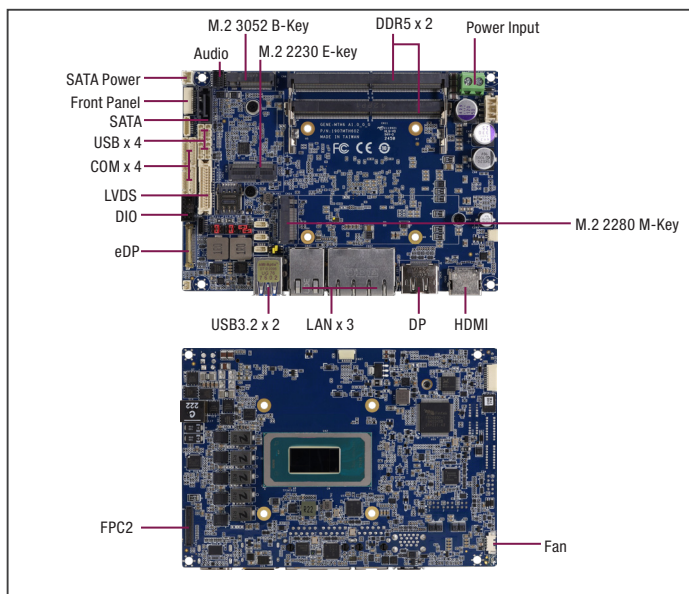


GENE-ARH6

3.5" SubCompact Board with Intel® Core™ Ultra SoC



Features

- Intel® Core™ Ultra processors (Series 2)
- DDR5 6400 MHz, Dual Channel SODIMM x 2, up to 96GB
- LVDS x 1, eDP x 1, DP x 1, HDMI x 1
- LAN x 3, SATA 6Gb/s x 1, 8-bit GPIO
- USB 3.2 Gen 2 x 2, USB 2.0 x 4
- M.2 2280 M-Key x 1, M.2 3052 B-Key x 1, M.2 2230 E-Key x 1
- DC Input 9 ~ 36V



Video	HDMI 2.1 x 1 DP 2.0++ x 1
Internal I/O	
USB	USB 2.0 x 4
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)
Video	LVDS x 1 Inverter x 1 (12V/2A) eDP x 1
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	GPIO 8-bit
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)
Touch	—
Fan	4 wire Smart Fan x 1
Sim	Nano SIM x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—
Expansion	
Mini PCIe/mSATA	—
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA) Default: PCIe 4.0 [x4] (selected by BOM) M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2/PCIe 3.0 [x2]) Default: PCIe 3.0 [x1] (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0), supports Wi-Fi 6E CNVi (RAID 0, RAID 1 support on PCIe storage)
Others	FPC2 x 1 (PCIe Gen4 [x4] x 2), Support RAID 0, RAID 1
Environment & Certification	
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	753,493
EMC	CE/FCC Class A

Specifications

System	
Form Factor	3.5" SubCompact Board
CPU	Intel® Core™ Ultra Processors (Series 2): Intel® Core™ Ultra 7 Processor 255H (16C/16T, up to 5.1 GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, up to 4.9 GHz, 28W) Intel® Core™ Ultra 7 Processor 255U (12C/14T, up to 5.2 GHz, 15W) Intel® Core™ Ultra 5 Processor 225U (12C/14T, up to 4.8 GHz, 15W)
Chipset	Integrated with Intel® SoC
Memory Type	DDR5 6400, Dual Channel SODIMM x 2 Max. 96GB, Non-ECC Note: Max capacity up to 2x 48GB DDR5 SODIMM up to 5600 MT/s
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Security	TPM2.0
RTC Battery	Lithium Battery 3V/240mAH
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.88 lb. (0.4Kg)
OS Support	Windows® 10 (64-bit) Windows® 11 (64-bit) Linux Ubuntu 24.04.2 (Kernel 6.11.0-25-generic)
Power	
Power Requirement	+9-36V (Optional: +12V), support ERP
Power Supply Type	AT/ATX, support 3pin ATX
Connector	Phoenix 2-pin Connector (Colay 4 pin connector)
Power Consumption	Intel® Core™ Ultra 7, DDR5 48GB x 2, 5.44A @+12V (Typical) Intel® Core™ Ultra 7, DDR5 48GB x 1, 9.56A @+12V (Max)
Display	
Controller	Intel® Arc™ Graphics Intel® Graphics
LVDS/eDP	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP 1.4b HBR3 x 1, up to 3840 x 2160 @60Hz
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 2.0 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)
Multiple Display	Up to 4 Simultaneous Displays
Audio	
Codec	Realtek ALC897
Audio Interface	Line-in/Line-out/MIC (Audio function not available for WITAS SKU)
Speaker	—
External I/O	
Ethernet	Intel® Ethernet Connection I219 1GbE, RJ-45 x 1 Intel® Ethernet Controller I226 2.5GbE, RJ-45 x 2, support PEX (Intel vPro® support with Intel® Core™ Ultra 7 Processor 265H)
USB	USB 3.2 Gen 2 x 2
Serial Port	—

Packing List

Part Number	Description	QTY
GENE-ARH6	GENE-ARH6 MB	1

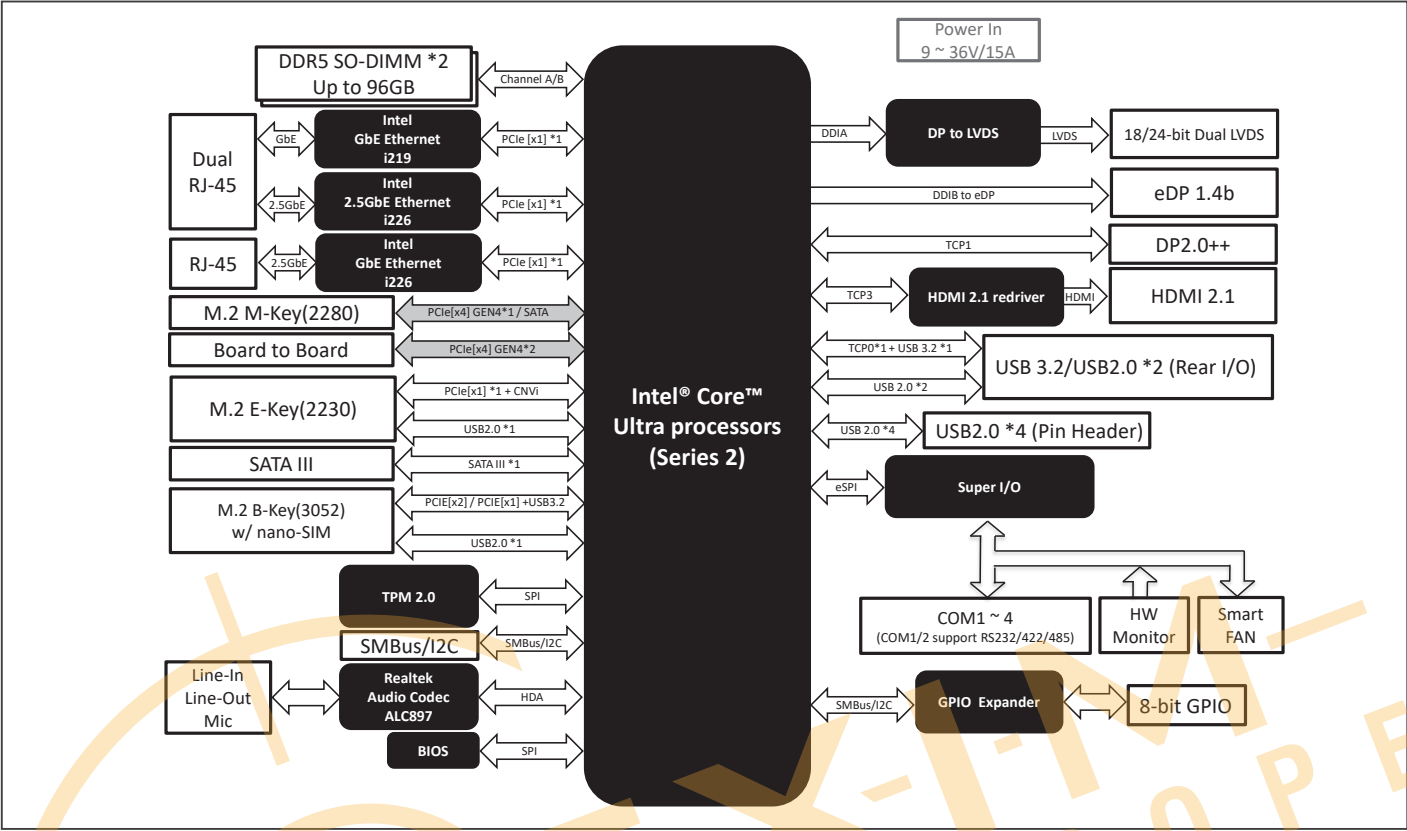
Optional Accessories

Part Number	Description	QTY
GENE-MTH6-FAN01	CPU Cooler.12V.Smart FAN	1
GENE-MTH6-HSP01	Heatspreader.100*72*9.5mm	1
PER-SB2B-A01-0001	FPC2.M.2 2280 M key x2.PCie[x4]	1
1702150155	SATA HDD Power Cable, 15cm	1
170204010R	Power Cable.Double 4P , 10cm	1
170X000398	Power Cable, DC JACK, 30cm	1
170X000603	Front Panel Cable , 10cm	1
170X000156	Audio Cable, 25cm	1
1701090150	COM Port Cable, 15cm	4
1700050207	USB 2.0 Cable, 20cm	4

Note: All specifications are subject to change without notice.

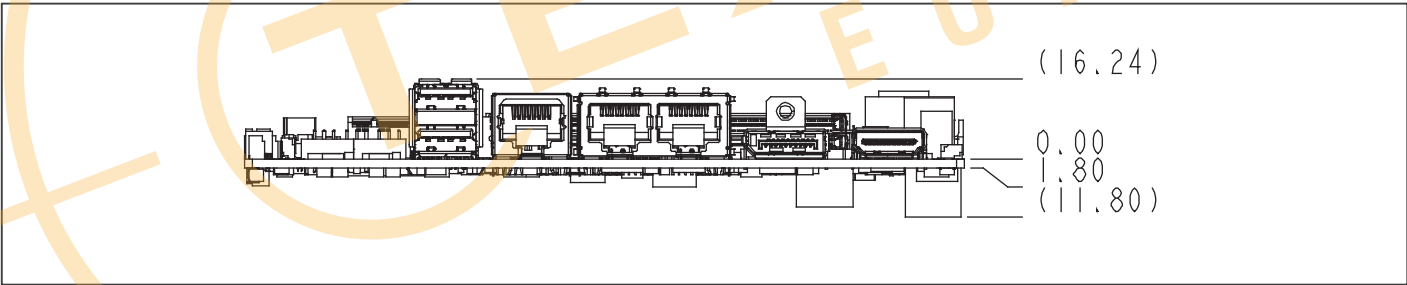


Block Diagram



Dimension

Unit: mm



Ordering Information

Part Number	CPU	Display	LAN	USB	Audio	COM	Storage	Expansion Slot	TPM	Power	TEMP	Others
GENE-ARH6-A10-0001	Intel® Core™ Ultra 7 Processor 255H	HDMI x 1 DP x 1 LVDS x 1 eDP x 1	GbE x 1 2.5GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	Line-in/Line-out/MIC	4	SATA x 1	M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 M.2 2230 E-Key x 1 FPC2 x 1	2.0	9~36V	0°C ~ 60°C	Nano SIM, GPIO x 8, SMBUS
GENE-ARH6-A10-0002	Intel® Core™ Ultra 5 Processor 225H	HDMI x 1 DP x 1 LVDS x 1 eDP x 1	GbE x 1 2.5GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	Line-in/Line-out/MIC	4	SATA x 1	M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 M.2 2230 E-Key x 1 FPC2 x 1	2.0	9~36V	0°C ~ 60°C	Nano SIM, GPIO x 8, SMBUS

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All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts.

Please contact us if you have any questions about the contents of the datasheet.

This may not be the latest version of the datasheet. Please check with us if a later version is available.





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