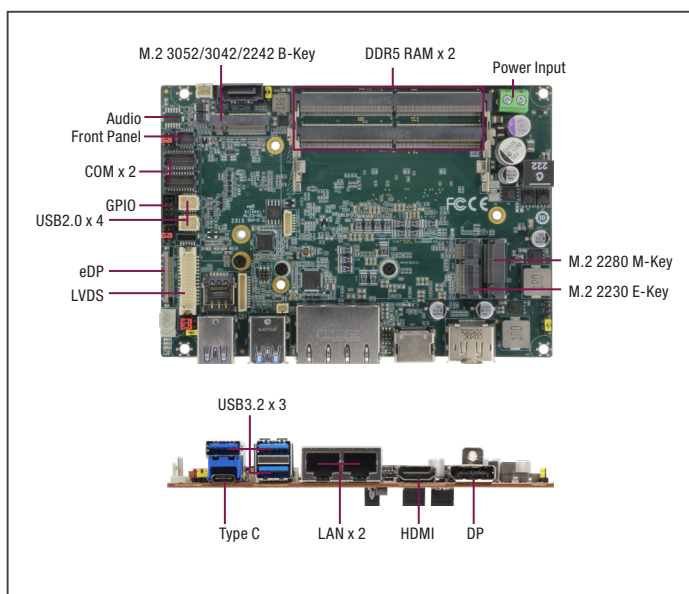


GENE-RAP6

3.5" SubCompact Board with 13th Generation Intel® Core™ i7/i5/i3 Processor SoC



Specifications

| System | |
|-------------------|---|
| Form Factor | 3.5" SubCompact Board |
| CPU | 13th Generation Intel® Core™/U-series Processors: Intel® Core™ i7-1370PE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i7-1370PRE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i5-1335UE (2PC+8EC/12T, 1.30 GHz, 15W) Intel® Core™ i3-1320PE (4PC+4EC/12T, 1.70 GHz, 28W) Intel® Processor U300E (1PC+4EC/6T, 1.10 GHz, 15W) |
| Chipset | Integrated with Intel® SoC |
| Memory Type | DDR5 4800, Dual Channel SODIMM x 2, Max. 64GB, Non-ECC |
| BIOS | UEFI |
| Wake on LAN | Yes |
| Watchdog Timer | 255 Levels |
| Security | TPM 2.0 (Optional) |
| RTC Battery | Lithium Battery 3V/240mAH |
| Dimensions | 5.75" x 4" (146mm x 101.7mm), 0.94 lbs (0.43 kg) |
| OS Support | Windows 10/11 (64bit) Ubuntu 22.04.2/5.19.0-32-generic |
| Power | |
| Power Requirement | +9V~36V (Optional: +12V) |
| Power Supply Type | AT/ATX |
| Connector | Phoenix 2-pin Connector |
| Power Consumption | Intel® Core™ i7-1370PE, DDR5 32GB x 2, 5.33A@ +12V (TYPICAL) Intel® Core™ i7-1370PE, DDR5 32GB x 2, 8.55A@ +12V (MAX) |
| Display | |
| Controller | Intel® Iris® Xe Graphics Intel® UHD Graphics |
| LVDS/eDP | LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional) |
| Display Interface | HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 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 |
| Speaker | — |
| External I/O | |
| Ethernet | Intel® I219 1GbE, RJ-45 x 1 Intel® I226 2.5GbE, RJ-45 x 1 |
| USB | USB 3.2 Gen 2 x 3 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A) |
| Serial Port | — |
| Video | HDMI 2.1 x 1, DP 1.4 x 1 |

Features

- 13th Generation Intel® Core™ i7/i5/i3/U-series Processor SoC
- DDR5 4800, Dual Channel SODIMM x 2, up to 64GB
- LVDS x 1, eDP x 1, DP x 1, HDMI x 1
- 2.5GbE x 1, GbE x 1, SATA 6Gb/s x 1, GPIO x 8-bit
- USB 3.2 Gen 2 x 3, USB 2.0 x 4, USB Type C x 1, RS-232/422/485 x 4
- M.2 2280 M-Key x 1, M.2 2230 E-Key x 1, M.2 3052/3042/2242 B-Key x 1
- Wide DC Input 9-36V



| 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-232/422/485) |
| Video | LVDS x 1 eDP x 1 Inverter x 1 (12V/2A) |
| SATA | SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1 |
| Audio | Audio Header x 1 (Optional) |
| DIO/GPIO | GPIO 8-bit |
| SMBus/I2C | SMBus/I2C x 1 (Default: SMBus) |
| Touch | — |
| Fan | 4pins 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] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) |
| Others | FPC x 1 (PCIe 4.0 [x4] x1), Only support Graphic or NVME |
| Environment & Certification | |
| Operating Temp. | 32°F ~ 140°F (0°C ~ 60°C) WITAS2: -40°F ~ 185°F (-40°C ~ 85°C) |
| Storage Temp. | -40°F ~ 185°F (-40°C ~ 85°C) |
| Operating Humidity | 0% ~ 90% relative humidity, non-condensing |
| MTBF (Hours) | 338,172 |
| EMC | CE/FCC Class A |

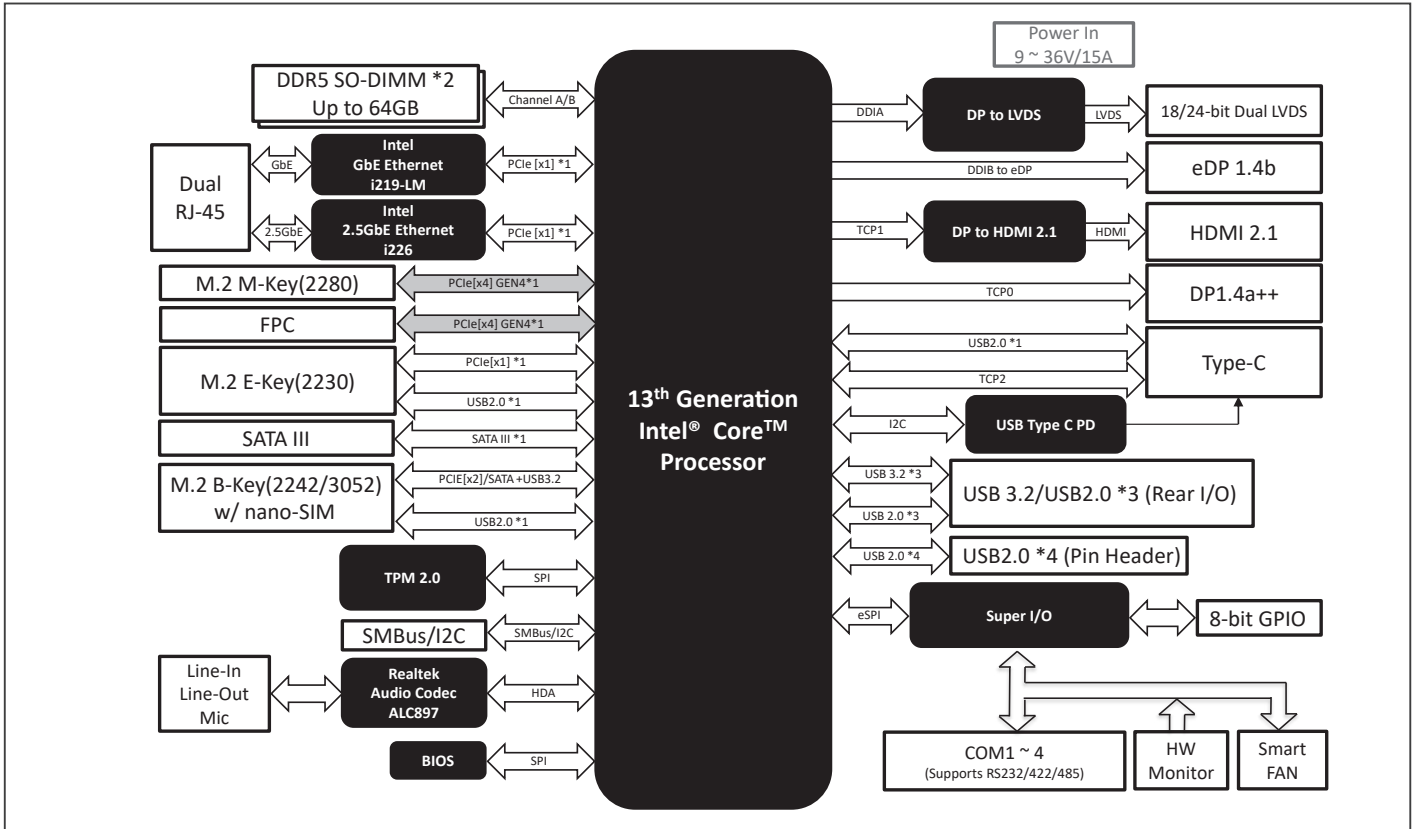
Packing List

| Part Number | Description | QTY |
|-------------|--------------|-----|
| GENE-RAP6 | GENE-RAP6 MB | 1 |

Optional Accessories

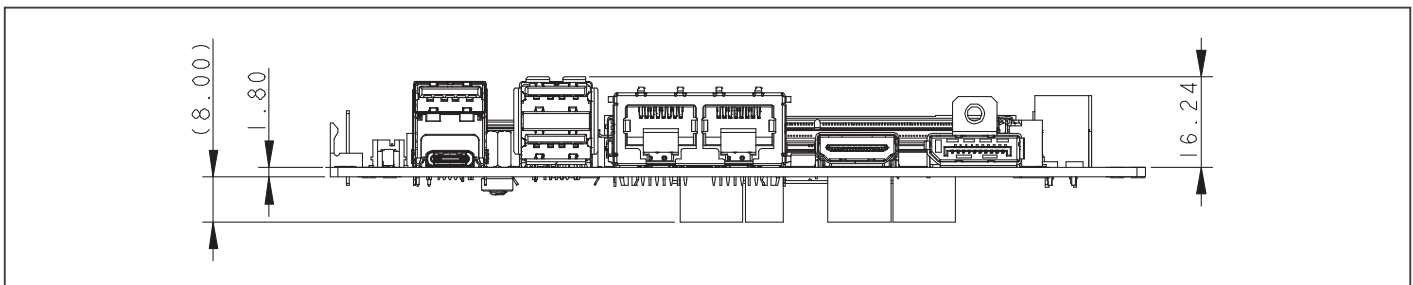
| Part Number | Description | QTY |
|-----------------|----------------------------------|-----|
| GENE-ADP6-FAN01 | CPU Cooler.12V.4800RPM.Smart FAN | 1 |
| GENE-ADP6-HSP01 | Heatspreader.146*80*11mm | 1 |
| GENE-ADP6-HSK01 | Heatsink. 146*101.6*25mm | 1 |
| 1702150155 | SATA HDD Power, Cable 15cm | 1 |
| 170X000398 | Power Cable, DC JACK, 30cm | 1 |
| 170204010R | Power Cable, Double 4P, 10cm | 1 |
| 170X000156 | Audio Cable, 25cm | 1 |
| 1709100108 | Front Panel Cable, 10cm | 1 |
| 170X000231 | COM Port Cable, 30cm | 2 |
| 170010010D | USB 2.0 Cable, 10cm | 2 |

Block Diagram



Dimension

Unit: mm



Ordering Information

| Part Number | CPU | Display | LAN | USB | COM | Storage | Expansion Slot | TPM | Power | Temp | Others |
|----------------------|-------------------------|---|---------------------|---|-----|---------|---|-----|-------|--------------|----------------------------------|
| GENE-RAP6-A10-0001 | Intel® Core™ i7-1370PE | HDMI x1 DP++ x1 LVDS x1 eDP x1 Type-c DP x1 | GbE x1 2.5GbE x1 | USB 3.2 Gen 2 x3 USB Type-C x1 USB 2.0 x4 | 4 | SATA x1 | M.2 2280 M-Key x1 M.2 3052 B-Key x1 M.2 2230 E-Key x1 | 2.0 | 9~36V | 0°C ~ 60°C | Audio, Nano SIM, GPIO x 8, SMBUS |
| GENE-RAP6-A10-0002 | Intel® Core™ i5-1340PE | HDMI x1 DP++ x1 LVDS x1 eDP x1 Type-c DP x1 | GbE x1 2.5GbE x1 | USB 3.2 Gen 2 x3 USB Type-C x1 USB 2.0 x4 | 4 | SATA x1 | M.2 2280 M-Key x1 M.2 3052 B-Key x1 M.2 2230 E-Key x1 | 2.0 | 9~36V | 0°C ~ 60°C | Audio, Nano SIM, GPIO x 8, SMBUS |
| GENE-RAP6-A10-0003 | Intel® Core™ i5-1335UE | HDMI x1 DP++ x1 LVDS x1 Type-c DP x1 | GbE x1 2.5GbE x1 | USB 3.2 Gen 2 x3 USB Type-C x1 USB 2.0 x4 | 4 | SATA x1 | M.2 2280 M-Key x1 M.2 3052 B-Key x1 M.2 2230 E-Key x1 | — | 12V | 0°C ~ 60°C | Audio, Nano SIM, GPIO x 8, SMBUS |
| GENE-RAP6-A10-0004 | Intel® Core™ i3-1320PE | HDMI x1 DP++ x1 LVDS x1 eDP x1 Type-c DP x1 | GbE x1 2.5GbE x1 | USB 3.2 Gen 2 x3 USB Type-C x1 USB 2.0 x4 | 4 | SATA x1 | M.2 2280 M-Key x1 M.2 3052 B-Key x1 M.2 2230 E-Key x1 | 2.0 | 9~36V | 0°C ~ 60°C | Audio, Nano SIM, GPIO x 8, SMBUS |
| GENE-RAP6-A10-0005 | Intel® Processor U300E | HDMI x1 DP++ x1 LVDS x1 Type-c DP x1 | GbE x1 2.5GbE x1 | USB 3.2 Gen 2 x3 USB Type-C x1 USB 2.0 x4 | 4 | SATA x1 | M.2 2280 M-Key x1 M.2 3052 B-Key x1 M.2 2230 E-Key x1 | — | 12V | 0°C ~ 60°C | Audio, Nano SIM, GPIO x 8, SMBUS |
| GENE-RAP6W2-A10-0006 | Intel® Core™ i7-1370PRE | HDMI x1 DP++ x1 LVDS x1 Type-c DP x1 | GbE x1 2.5GbE x1 | USB 3.2 Gen 2 x3 USB Type-C x1 USB 2.0 x4 | 4 | SATA x1 | M.2 2280 M-Key x1 M.2 3052 B-Key x1 M.2 2230 E-Key x1 | 2.0 | 12V | -40°C ~ 85°C | Nano SIM, GPIO x 8, SMBUS |

Note: All specifications are subject to change without notice.