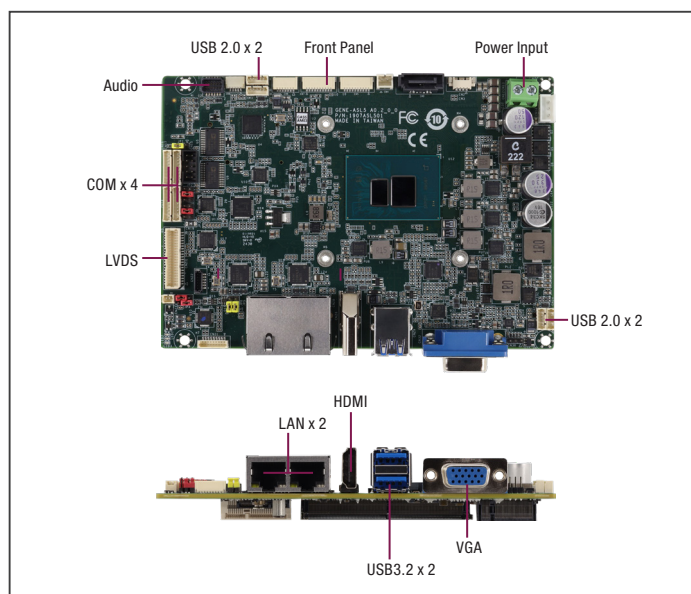


GENE-TWL5

3.5" SubCompact Board with Intel® Core™ Processor N-series, Intel® Processor N-series



Features

- Intel® Core™ Processor N-series, Intel® Processor N-series
- DDR5 4800 MHz, Dual Channel SODIMM x 1, Up to 16GB
- LVDS Dual Channel 18/24 bit x 1, VGA x 1, HDMI x 1
- Intel® 2.5GbE x 2, SATA III x 1, GPIO x 8bit
- USB 3.2 Gen2 x 2, USB 2.0 x 4
- Full size mPCIe/mSATA
- M.2 3052 B-Key x 1, M.2 2230 E-Key x 1
- DC Input 9-36V
- Supports WiTAS



| | |
|--|--|
| 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 | 4/5/8 wire Touch Controller x 1 |
| Fan | 4-pin Smart Fan x 1 |
| Sim | Nano SIM x 1 |
| Front Panel | HDD LED, PWR LED, Power Button, Buzzer, Reset |
| Others | — |
| Expansion | |
| Mini PCIe/mSATA | Full-size mSATA / mPCIe x 1 (Default: mPCIe, select by BIOS) |
| M.2 | M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2 Gen 2/PCIe 3.0 [x2] + USB 2.0, default: PCIe [x1] + USB 3.2 Gen 2, selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0, support CNVi) |
| Others | — |
| Environment & Certification | |
| Operating Temp. | -4°F ~ 158°F (-20°C ~ 70°C) |
| Storage Temp. | -40°F ~ 185°F (-40°C ~ 85°C) |
| Operating Humidity | 0% ~ 90% relative humidity, non-condensing |
| MTBF (Hours) | 1,284,701 |
| EMC | CE/FCC Class A |

Specifications

| | |
|---------------------|--|
| System | |
| Form Factor | 3.5" SubCompact Board |
| CPU | Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W) Intel® Core™ 3 Processor N355 (8C/8T, up to 3.90GHz, 15W) |
| Chipset | Integrated with Intel® SoC |
| Memory Type | DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC |
| BIOS | UEFI |
| Wake on LAN | Yes |
| Watchdog Timer | 255 Levels |
| Security | TPM 2.0 |
| RTC Battery | Lithium Battery 3V/240mAh |
| Dimensions | 5.75" x 4" (146mm x 101.7mm), 1.1 lb. (0.5Kg) |
| OS Support | Windows 10 (64-bit) Windows 11 (64-bit) Ubuntu 24.04.2/ kernel 6.11.0-17-generic |
| Power | |
| Power Requirement | +9V~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™ 3 Processor N355, DDR5 16GB x 1, 3.43A @+12V (Typical) Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 5.13A @+12V (Max) |
| Display | |
| Controller | Intel® UHD Graphics |
| LVDS/eDP | LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP HBR3 x 1, up to 1920 x 1200 (Optional) |
| Display Interface | HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080 |
| Multiple Display | Up to 3 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 Controller I226, 2.5GbE x 2 |
| USB | USB 3.2 Gen 2 x 2 |
| Serial Port | — |
| Video | HDMI 1.4 x 1, VGA 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 eDP x 1 Inverter x 1 (12V/2A) |

Packing List

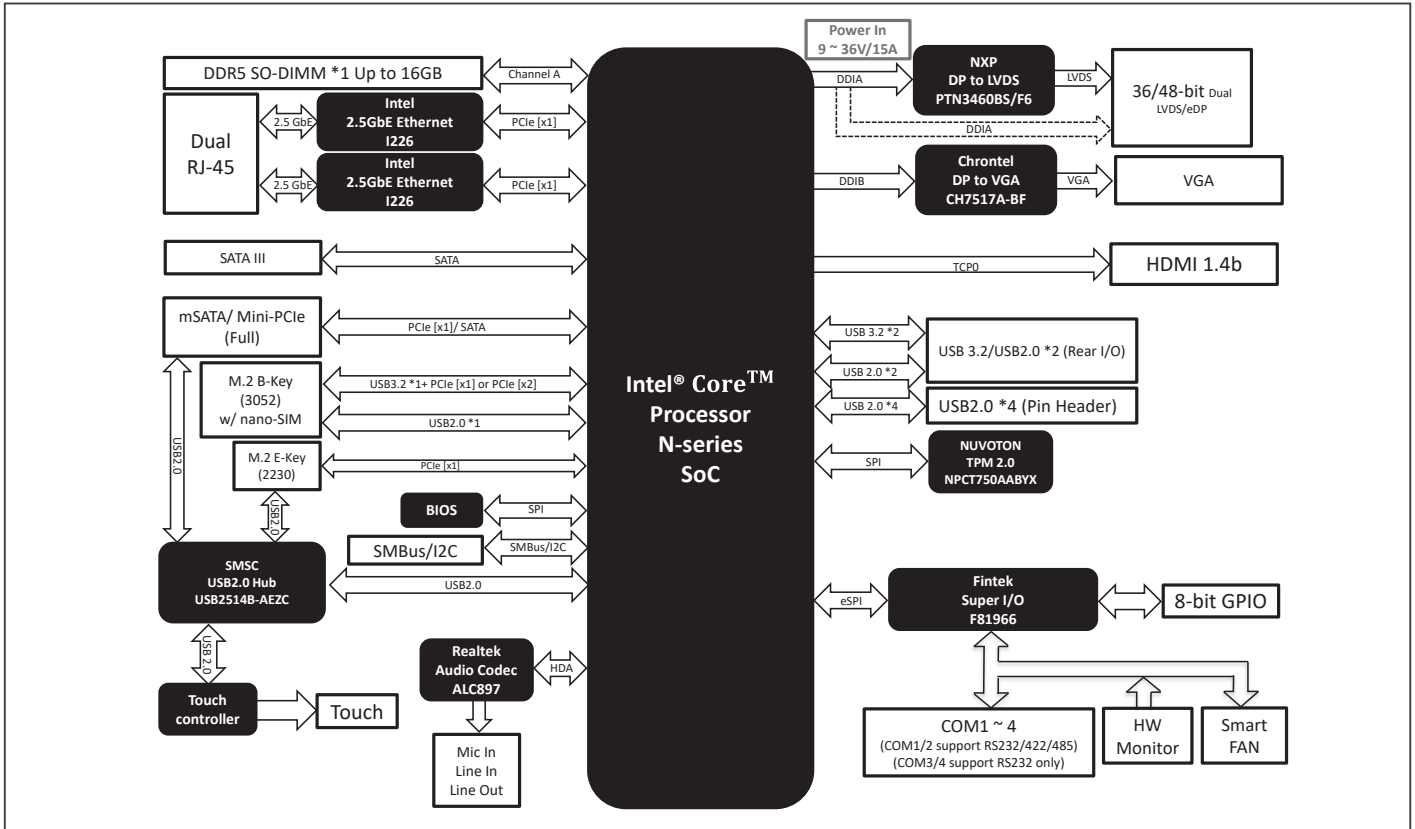
| Part Number | Description | QTY |
|-------------|--------------|-----|
| GENE-TWL5 | GENE-TWL5 MB | 1 |
| M16BT07020 | Heat Sink | 1 |

Optional Accessories

| Part Number | Description | QTY |
|-------------|------------------------------|-----|
| 1702150155 | SATA HDD Power Cable, 15cm | 1 |
| 170204010R | Power Cable.Double 4P , 10cm | 1 |
| 170X000398 | Power Cable, DC JACK, 30cm | 1 |
| 170X000287 | Front Panel Cable , 10cm | 1 |
| 170X000156 | Audio Cable, 25cm | 1 |
| 1700050207 | USB 2.0 Cable, 20cm | 4 |
| 1701090150 | COM Port Cable, 15cm | 4 |
| 170220020B | ATX Power Cable, 20cm | 1 |

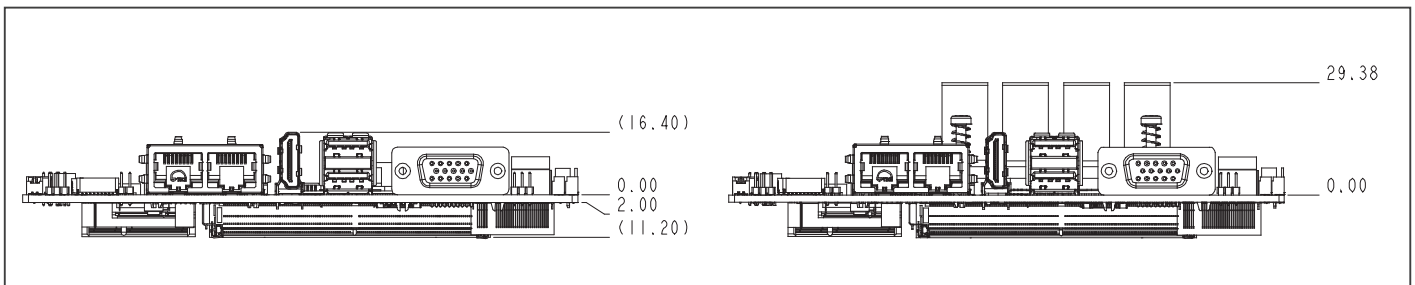


Block Diagram



Dimension

Unit: mm



Ordering Information

| Part Number | CPU | Display | LAN | COM | Storage | Expansion Slot | TPM | Power | Temp | Others |
|--------------------|-------------------------------|---------------------------------|------------|-----|----------|--|-----|-------|--------------|-----------------------------------|
| GENE-TWL5-A10-0001 | Intel® Processor™ N150 | VGA x 1 HDMI x 1 LVDS x 1 | 2.5GbE x 2 | 4 | SATA x 1 | M.2 B-Key 3052 x 1 M.2 E-Key 2230 x 1 MiniCard x 1 | 2.0 | 9~36V | -20°C ~ 70°C | GPIO x 8, Touch Controller, SMBUS |
| GENE-TWL5-A10-0002 | Intel® Core™ 3 Processor N355 | VGA x 1 HDMI x 1 LVDS x 1 | 2.5GbE x 2 | 4 | SATA x 1 | M.2 B-Key 3052 x 1 M.2 E-Key 2230 x 1 MiniCard x 1 | 2.0 | 9~36V | -20°C ~ 70°C | GPIO x 8, Touch Controller, SMBUS |