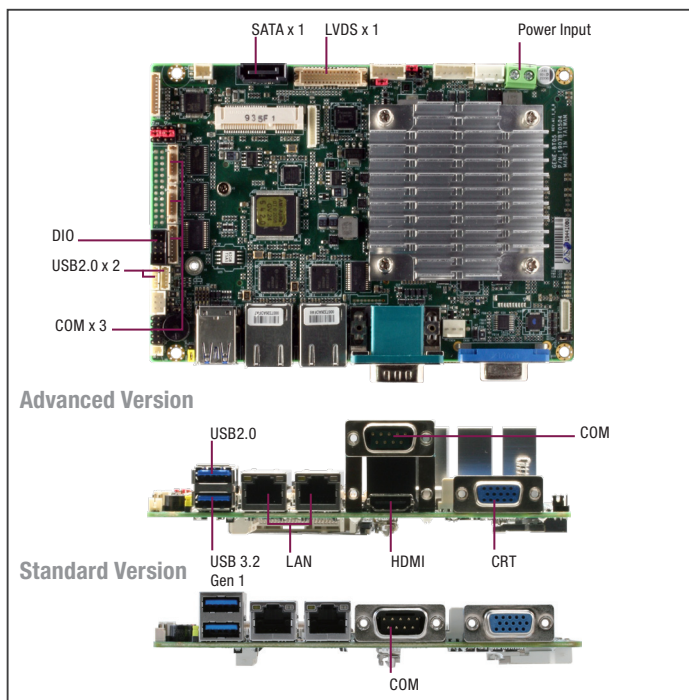


# GENE-BT05

3.5" SubCompact Board with Intel® Atom® and Celeron® Processor SoC



## Features

- Onboard Intel® Atom® and Celeron® Processor SoC
- DDR3L 1066/1333 MHz SODIMM x 1, Up to 8 GB
- Gigabit Ethernet x 2, RJ-45 x 2
- CRT, 18/24-bit Dual-Channel LVDS LCD, HDMI
- 2CH HD Audio
- SATA 3.0 Gb/s x 1, CFast™ x 1
- USB 3.2 Gen 1 x 1, USB2.0 x 3, COM x 4, 8-bit Digital I/O
- Mini-Card x 2 (Full-size x 1, Half-size x 1)
- DC 12V, AT/ATX Mode
- Onboard 4/5/8-wire Resistive Touch Screen Controller (Optional)
- AAEON Hi-Safe/SDK/Utility Supported
- mSATA x 1 (Optional, Share Mini-Card Interface)
- Onboard Trusted Platform Module (Optional)



| Internal I/O                |                                                                          |
|-----------------------------|--------------------------------------------------------------------------|
| USB                         | USB2.0 x 2                                                               |
| Serial Port                 | COM2, COM3 (RS232/422/485, supports 5V/12V/RI), COM4 (RS232)             |
| Video                       | LVDS x 1                                                                 |
| SATA                        | SATA III x 1, +5V SATA Power Connector x 1                               |
| Audio                       | Audio Header x 1 (Audio function not available for WiTAS SKU)            |
| DIO/GPIO                    | 8-bit                                                                    |
| SMBus/I2C                   | I2C/SMBus x1 (Default: SMBus)                                            |
| Touch                       | 4/5/8-wire Touch Controller x 1 (optional)                               |
| Fan                         | DC Fan x 1 (optional: Smart Fan)                                         |
| Sim                         | SIM X1                                                                   |
| Front Panel                 | HDD LED, PWR LED, Power Button, Buzzer, Reset                            |
| Others                      | CFast™ (option with mSATA by BOM, occupies one Mini Card location)       |
| Expansion                   |                                                                          |
| Mini PCIe/mSATA             | Full-Size mPCIe/ USB2.0 x 1<br>Half-Size mSATA/ mPCIe x 1 (BOM optional) |
| M.2                         | —                                                                        |
| Others                      | —                                                                        |
| Environment & Certification |                                                                          |
| Operating Temp.             | 32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 (E3825)                             |
| Storage Temp.               | -40°F ~ 176°F (-40°C ~ 80°C)                                             |
| Operating Humidity          | 0% ~ 90% relative humidity, non-condensing                               |
| MTBF (Hours)                | 344,859                                                                  |
| EMC                         | CE/FCC Class A                                                           |

## Optional Accessories

| Part Number | Description            | QTY per Board |
|-------------|------------------------|---------------|
| 1700050207  | USB Cable, 20cm        | 2             |
| 1701090150  | COM Cable, 15cm        | 3             |
| 1709100254  | Audio Jack Cable, 25cm | 1             |
| 1709070500  | SATA CABLE, 50cm       | 1             |
| 170204010R  | Power Cable, 10cm      | 1             |
| 1702150155  | SATA Power Cable, 15cm | 1             |
| 170220020B  | ATX Power Cable, 20cm  | 1             |

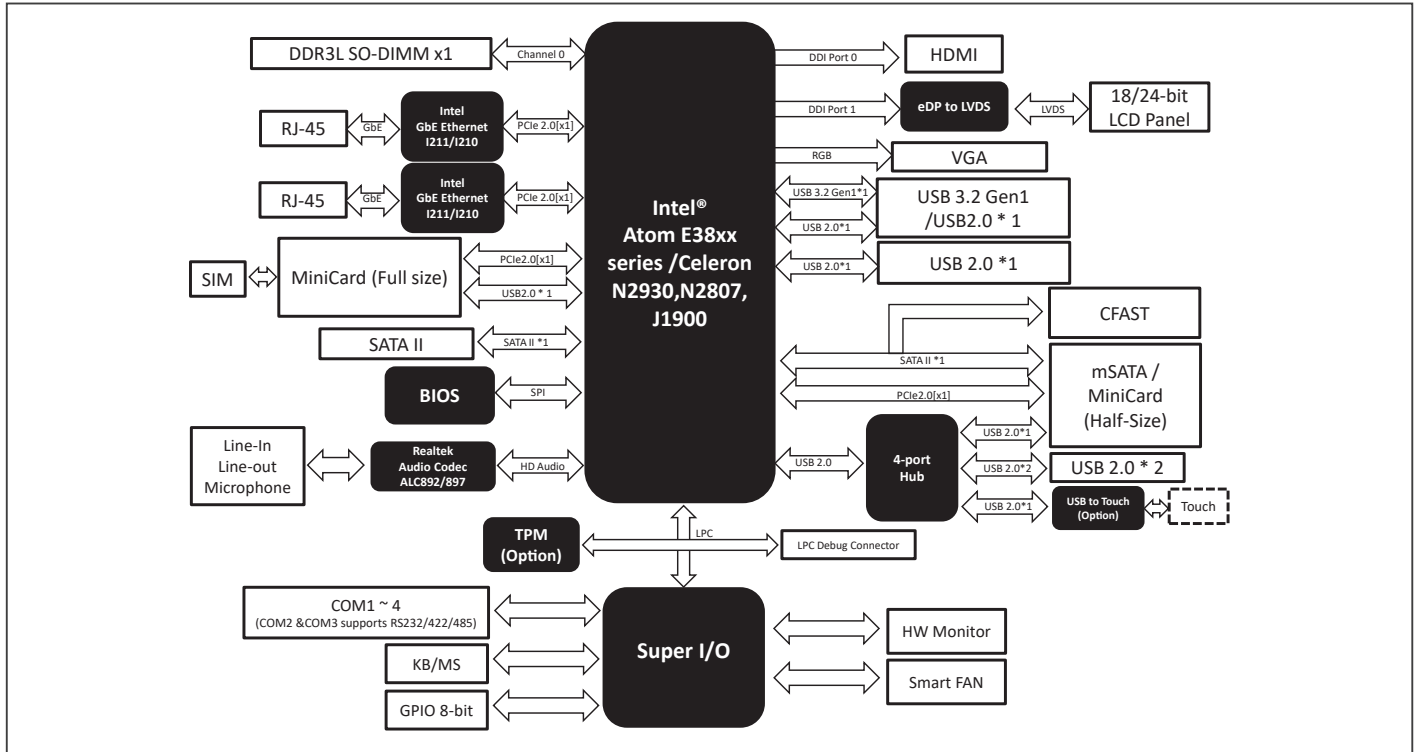
## Packing List

| Part Number | Description  | QTY |
|-------------|--------------|-----|
| GENE-BT05   | GENE-BT05 MB | 1   |
| M16BT07020  | Heatsink     | 1   |

## Specifications

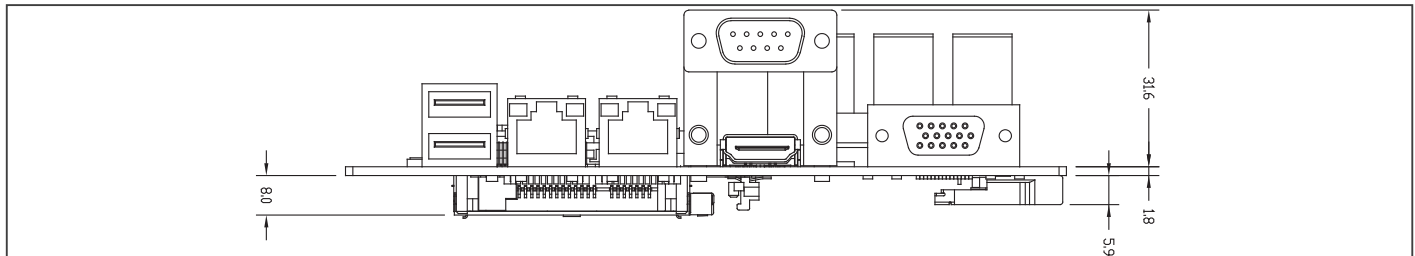
| System            |                                                                                                                                                                                                                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Form Factor       | 3.5" SubCompact Board                                                                                                                                                                                                                                                                |
| CPU               | Intel® Atom® / Celeron® Processor:<br>Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz, 10W)<br>Celeron® N2930 (4C/4T, 1.83GHz, up to 2.16GHz, 7.5W)<br>Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz, 4.3W)<br>Atom® E3845 (4C/4T, 1.91 GHz, 10W)<br>Atom® E3825 (2C/2T, 1.33 GHz, 6W) |
| Chipset           | Integrated with Intel® SoC                                                                                                                                                                                                                                                           |
| Memory Type       | DDR3L up to 1333MHz, SODIMM x 1, up to 8GB, Non-ECC                                                                                                                                                                                                                                  |
| BIOS              | UEFI                                                                                                                                                                                                                                                                                 |
| Wake on LAN       | Yes                                                                                                                                                                                                                                                                                  |
| Watchdog Timer    | 255 Levels                                                                                                                                                                                                                                                                           |
| Security          | TPM 1.2(Optional)                                                                                                                                                                                                                                                                    |
| RTC Battery       | Lithium Battery 3V/240mAh                                                                                                                                                                                                                                                            |
| Dimensions        | 5.75" x 4" (146mm x 101.7mm)                                                                                                                                                                                                                                                         |
| OS Support        | Windows 7/10 (64bit)<br>Linux Ubuntu 20.04.3/Kernel 5.11                                                                                                                                                                                                                             |
| Power             |                                                                                                                                                                                                                                                                                      |
| Power Requirement | +12V Only                                                                                                                                                                                                                                                                            |
| Power Supply Type | AT/ATX                                                                                                                                                                                                                                                                               |
| Connector         | Phoenix 2-pin Connector                                                                                                                                                                                                                                                              |
| Power Consumption | Intel® J1900, DDR3L 1600MHz 8GB, 1.73A @ +12V(TYPICAL)<br>Intel® J1900, DDR3L 1600MHz 8GB, 1.88A @ +12V(MAX)                                                                                                                                                                         |
| Display           |                                                                                                                                                                                                                                                                                      |
| Controller        | Intel® HD Graphics for Intel Atom® Processor Z3700 Series                                                                                                                                                                                                                            |
| LVDS/eDP          | LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080                                                                                                                                                                                                                                    |
| Display Interface | HDMI 1.4a x 1, up to 3840 x 2160<br>VGA x 1, up to 1920 x 1200                                                                                                                                                                                                                       |
| Multiple Display  | Up to 3 Simultaneous Displays                                                                                                                                                                                                                                                        |
| Audio             |                                                                                                                                                                                                                                                                                      |
| Codec             | Realtek ALC897/892                                                                                                                                                                                                                                                                   |
| Audio Interface   | Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)                                                                                                                                                                                                                |
| Speaker           | —                                                                                                                                                                                                                                                                                    |
| External I/O      |                                                                                                                                                                                                                                                                                      |
| Ethernet          | Intel® i210/i211, 10/100/1000Base, RJ-45 x 2                                                                                                                                                                                                                                         |
| USB               | USB 3.2 Gen 1 x 1, USB 2.0 x 1                                                                                                                                                                                                                                                       |
| Serial Port       | COM1 (RS232)                                                                                                                                                                                                                                                                         |
| Video             | VGA x 1, HDMI 1.4a x 1                                                                                                                                                                                                                                                               |

## Block Diagram



## Dimension

Unit: mm



## Ordering Information

| Part Number          | CPU                  | Display                                 | LAN     | USB                      | RS-232 | RS-232/422/485 | Storage                           | Expansion Slot                                  | TPM | Power        | Operating Temp        | Others                         |
|----------------------|----------------------|-----------------------------------------|---------|--------------------------|--------|----------------|-----------------------------------|-------------------------------------------------|-----|--------------|-----------------------|--------------------------------|
| GENE-BT05-A12-0001   | Intel®Celeron® N2930 | CRT + LVDS<br>LVDS + HDMI<br>HDMI + CRT | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>CFast x 1             | Mini Card x 2<br>(Full-Size x 1, Half-Size x 1) | 1.2 | +12V, AT/ATX | 0°C ~ 60°C            | Audio, Touch, SIM,<br>GPIO x 8 |
| GENE-BT05-A12-0002   | Intel®Celeron® N2930 | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | 0°C ~ 60°C            | Audio, GPIO x 8                |
| GENE-BT05-A12-0003   | Intel®Celeron® N2807 | CRT + LVDS<br>LVDS + HDMI<br>HDMI + CRT | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>CFast x 1             | Mini Card x 2<br>(Full-Size x 1, Half-Size x 1) | 1.2 | +12V, AT/ATX | 0°C ~ 60°C            | Audio, Touch, SIM,<br>GPIO x 8 |
| GENE-BT05-A12-0004   | Intel®Celeron® N2807 | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | 0°C ~ 60°C            | Audio, GPIO x 8                |
| GENE-BT05-A12-0005   | Intel® Atom™ E3845   | CRT + LVDS<br>LVDS + HDMI<br>HDMI + CRT | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>CFast x 1             | Mini Card x 2<br>(Full-Size x 1, Half-Size x 1) | 1.2 | +12V, AT/ATX | 0°C ~ 60°C            | Audio, Touch, SIM,<br>GPIO x 8 |
| GENE-BT05-A12-0006   | Intel® Atom™ E3845   | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | 0°C ~ 60°C            | Audio, GPIO x 8                |
| GENE-BT05-A12-0007   | Intel® Atom™ E3825   | CRT + LVDS<br>LVDS + HDMI<br>HDMI + CRT | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>CFast x 1             | Mini Card x 2<br>(Full-Size x 1, Half-Size x 1) | 1.2 | +12V, AT/ATX | 0°C ~ 60°C            | Audio, Touch, SIM,<br>GPIO x 8 |
| GENE-BT05-A12-0008   | Intel® Atom™ E3825   | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | 0°C ~ 60°C            | Audio, GPIO x 8                |
| GENE-BT05-A12-0009   | Intel®Celeron® J1900 | CRT + LVDS<br>LVDS + HDMI<br>HDMI + CRT | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>CFast x 1             | Mini Card x 2<br>(Full-Size x 1, Half-Size x 1) | 1.2 | +12V, AT/ATX | 0°C ~ 60°C            | Audio, Touch, SIM,<br>GPIO x 8 |
| GENE-BT05-A12-0010   | Intel®Celeron® J1900 | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | 0°C ~ 60°C            | Audio, GPIO x 8                |
| GENE-BT05W2-A12-0006 | Intel® Atom™ E3845   | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | WTAS<br>2(-40°C~85°C) | GPIO x 8                       |
| GENE-BT05W2-A12-0008 | Intel® Atom™ E3825   | CRT + LVDS                              | Gbe x 2 | USB3.0 x 1<br>USB2.0 x 3 | 2      | 2              | SATA x 1<br>mSATA x 1 (Half Size) | Mini Card x 1 (Full-Size)                       | —   | +12V, AT/ATX | WTAS<br>2(-40°C~85°C) | GPIO x 8                       |