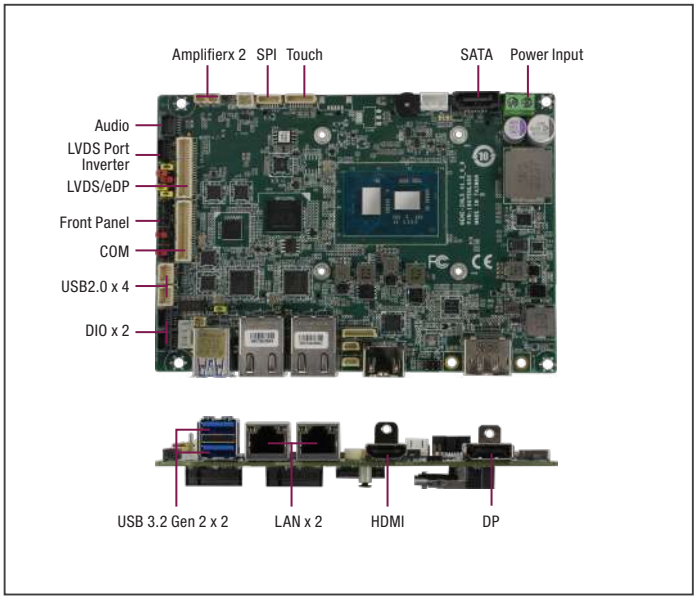
GENE-EHL5

3.5” SubCompact Board with Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors



Features

- **DDR4 SODIMM Slot x 1, up to 32GB, support IBECC**
- **LVDS/eDP x 1 (Default: LVDS), DP 1.4 x 1 (Optional VGA x 1), HDMI 2.0b x 1**
- **SATA 6Gb/s x 1, eMMC x 1**
- **USB 3.2 Gen 2 x 2 (Rear I/O), USB 2.0 x 4 (Pin header)**
- **M.2 2280 B-Key (PCIe [x1]), M.2 2242 B-Key (PCIe [x1]), M.2 2230 E-Key x 1, M.2 3052 B-Key x 1**
- **Wide DC Input 9~36V (Optional: 12V Only)**

Specifications

System	
Form Factor	3.5" SubCompact Board
CPU	Intel Atom® x6000E series, Pentium®, and Celeron® N and J series Processors: Intel Atom® x6425RE (4C/4T, 1.90 GHz, 12W) Intel Atom® x6425E (4C/4T, 2.00 GHz, 12W) Intel Atom® x6211E (2C/2T, 1.30 GHz, 6W) Intel® Pentium® Processor J6426 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor N6210 (2C/2T, 1.20 GHz, 6.5W)
Chipset	Integrated with Intel® SoC
Memory Type	DDR4 3200, Single Channel SODIMM x 1, Max. 32GB, Non-ECC *IBECC supported by selected CPU SKU
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), 1.10 lbs (0.50 kg)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.04.3(IOT)/Kernel 5.13
Power	
Power Requirement	+9V~36V (Optional: +12V)
Power Supply Type	AT/ATX
Connector	Phoenix 2-pin Connector
Power Consumption	Intel Atom® x6425E, DDR4 32GB, 3.26A @+12V (Typical) Intel Atom® x6425E, DDR4 32GB, 3.42A @+12V (Max)
Display	
Controller	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.3 x 1, up to 1920 x 1200 (Optional)
Display Interface	HDMI 2.0 x 1, up to 3840 x 2160@60Hz DP 1.4 x 1, up to 3840 x 2160@120Hz (support DP++) VGA x 1, up to 2560 x 1440 (Optional)
Multiple Display	Up to 3 Simultaneous Displays
Audio	
Codec	Realtek ALC256
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)
Speaker	2W Speaker (Audio function not available for WiTAS SKU)
External I/O	
Ethernet	Intel® I210 1GbE, RJ45 x 2
USB	USB 3.2 Gen 2 x 2
Serial Port	—
Video	HDMI 2.0 x 1 DP 1.4 x 1 (Optional:VGA x 1)

Internal I/O	
USB	USB2.0 x 4
Serial Port	COM 1, COM 4 (RS-232/422/485) COM 2, COM 3 (RS-232/422/485, supports 5V/12V/RI)
Video	LVDS/eDP x 1 (Default: LVDS) 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, Audio function not available for WiTAS SKU) Speaker Header x 2 (Optional, Audio function not available for WiTAS SKU)
DIO/GPIO	GPIO 16-bits (8 In / 8 Out)
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)
Touch	4/5/8 wire Touch Controller x 1 (Optional)
Fan	4pins Smart Fan x 1
Sim	Nano SIM x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	eMMC5.1 32GB CANBUS x 2, TX/RX (Celeron J6412 and Celeron N6210 don’t support CANBUS)
Expansion	
Mini PCIe/mSATA	—
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0) M.2 2242 B-Key x 1 (PCIe 3.0 [x2]/SATA, Default: PCIe [x2]) M.2 2280 B-Key x 1 (PCIe 3.0 [x1], USB 2.0, PCIe 3.0 [x2] select by BIOS) M.2 3052 B-Key x 1 (USB 3.2 Gen 2, USB2.0)
Others	—
Environment & Certification	
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C) WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	335,427
EMC	CE/FCC Class A

Optional Accessories

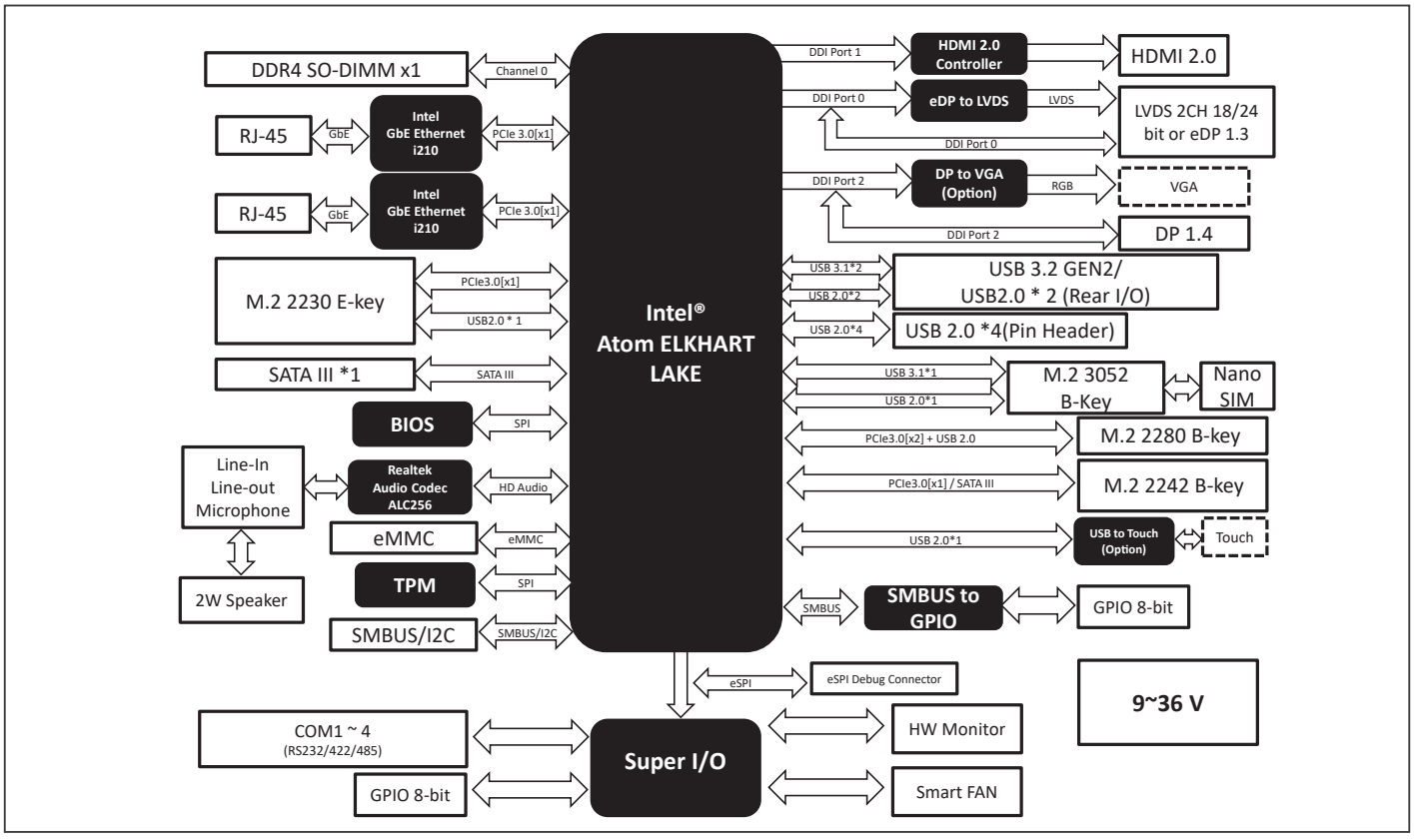
Part Number	Description	QTY per Board
170X000156	Audio Cable, 25cm	1
1709070500	SATA Cable, 50cm	1
1702150155	SATA HDD Power, Cable 15cm	1
170010010D	USB 2.0 Cable, 10cm	2
170204010R	Power Cable, 10cm	1
170X000317	COM cable, 15cm	1
170220020B	ATX Power Cable, 20cm	1

Packing List

Part Number	Description	QTY
GENE-EHL5	GENE-EHL5 MB	1
M16BT07020	Heat Sink	1

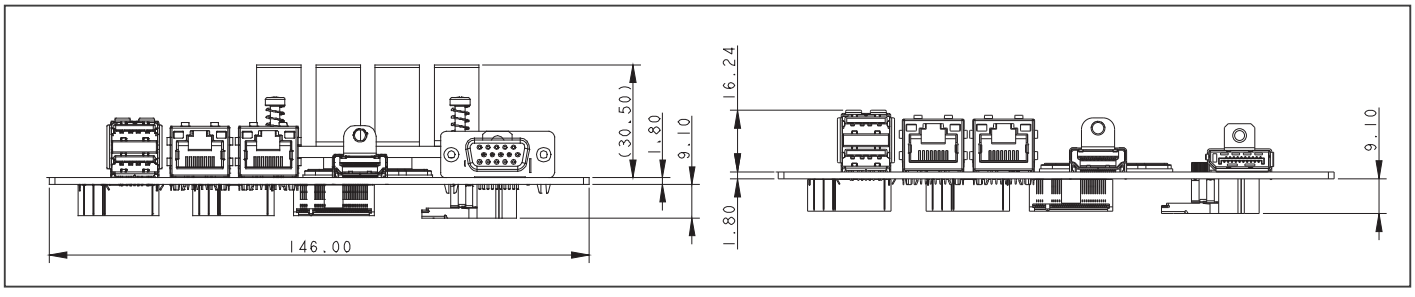
Note: All specifications are subject to change without notice.

Block Diagram



Dimension

Unit: mm



Ordering Information

Part Number	CPU	Display	LAN	USB	RS-232/422/485	Storage	Expansion Slot	TPM	Power	Temp	Others
GENE-EHL5-A12-0003	Intel® Celeron® Processor J6412	DP++ x 1, HDMI x 1 LVDS x 1	GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	4	SATA x 1 eMMC 32GB	M.2 B-Key 2280 x 1, M.2 B-Key 2242 x 1 M.2 E-Key 2230 x 1, M.2 B-Key 3052 x 1	2.0	9~36V	0°C ~ 60°C	GPIO x 16, nano SIM, Touch Controller, SMBUS, Audio
GENE-EHL5-A12-0004	Intel® Celeron® Processor J6412	VGA x 1, LVDS x 1	GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	4	SATA x 1	M.2 B-Key 2280 x 1, M.2 B-Key 2242 x 1 M.2 E-Key 2230 x 1, M.2 B-Key 3052 x 1	NA	12V	0°C ~ 60°C	GPIO x 16, nano SIM, SMBUS, Audio
GENE-EHL5-A12-0005	Intel® Pentium® Processor J6426	DP++ x 1, HDMI x 1 LVDS x 1	GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	4	SATA x 1	M.2 B-Key 2280 x 1, M.2 B-Key 2242 x 1 M.2 E-Key 2230 x 1, M.2 B-Key 3052 x 1	2.0	9~36V	0°C ~ 60°C	GPIO x 16, nano SIM, Touch Controller, SMBUS, CANBUS x 2, Audio
GENE-EHL5-A12-0007	Intel Atom® x6425E	DP++ x 1, HDMI x 1 LVDS x 1	GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	4	SATA x 1 eMMC 32GB	M.2 B-Key 2280 x 1, M.2 B-Key 2242 x 1 M.2 E-Key 2230 x 1, M.2 B-Key 3052 x 1	2.0	9~36V	0°C ~ 60°C	GPIO x 16, nano SIM, Touch Controller, SMBUS, CANBUS x 2, Audio
GENE-EHL5W2-A12-0008	Intel Atom® x6425E	VGA x 1, LVDS x 1	GbE x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 4	4	SATA x 1	M.2 B-Key 2280 x 1, M.2 B-Key 2242 x 1 M.2 E-Key 2230 x1, M.2 B-Key 3052 x1	NA	12V	-40°C ~ 85°C	GPIO x 16, nano SIM, SMBUS