

GENE-ADP6

Intel[®] Alder Lake i7/i5/i3/Celeron SoC GENE Board

Engineering Specification

Dept.	Name	Sign	Date
PM	Mico Chang		
EE	Yungtang Lin		
ME	Ted Lin		
BIOS	Mark Wang		

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Revision History

Revision	Brief Description of Changes	Date of Issue	Author(s)
0.1	Initial document	2022,3,3	Paul Lin

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1. Main Feature

- Intel® Core i7/i5/i3/Celeron SoC
- DDR5 4800 MHz, Dual Channel SODIMM x 2, Up to 64GB
- LVDS Dual Channel 18/24 bit x1, eDP 1.4b, DP1.4a x 1, HDMI 2.0b
- GbE x2, SATA III x 1, DIO x 8bit
- USB 3.2 Gen2 x 3 (Rear I/O), USB2.0 x4(Pin header), USB Type C x1
- RS-232/422/485 x 4
- M.2 M-key 2280 x 1 (PCIe x4)
- M.2 E-Key 2230 x 1 (PCIe, USB2.0)
- M.2 B-Key 3052 x 1 (PCIe x2, USB3.2+SATA, USB2.0), default: USB3.2+SATA
- Wide DC Input 9-36V (Optional: 12V Only)

2. Hardware SPECIFICATIONS

SYSTEM

FORM FACTOR

3.5" SubCompact Board

PROCESSOR

Intel® Alder Lake-P i7/i5/i3/Celeron CPU
 ADL-P 6C/8T 28W
 ADL-P 4C/8T 28W
 ADL-P 2C/8T 15W

CPU TDP

TBD

CHIPSET

Intel® Alder Lake-P PCH

MEMORY TYPE

DDR5 4800 MHz, Dual Channel SODIMM x 2

ECC Support

Non-ECC

MAX. MEMORY CAPACITY

64GB

BIOS

AMI UEFI 256Mbit

WAKE ON LAN

Yes

WATCHDOG TIMER

255 Levels

SECURITY

TPM2.0 (NPCT750AABYX)

RTC Battery

Lithium Battery 3V/240mAH

POWER

POWER REQUIREMENT

+9-36V (Optional: +12V)

POWER SUPPLY TYPE

AT/ATX

CONNECTOR

Phoenix 2-pin Connector

POWER CONSUMPTION (TYPICAL)

TBD

DISPLAY

CONTROLLER

Intel® IRIS Xe Graphics Architecture

LVDS/eDP

LVDS Dual Channel 18/24bit x 1
 eDP1.4b HBR3

Display Interface

HDMI 2.0b x 1
 DP1.4a x 1
 DP1.4a x 1 (via USB Type C), PD 5V 3A

Multiple Display

4 Simultaneous Displays

AUDIO

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CODEC	Realtek ALC897
AUDIO INTERFACE	Line-in/Line-out/MIC
Speaker	—
EXTERNAL I/O	
ETHERNET	Intel® i210/i211, 10/100/1000Base Intel® i225, 10/100/1000/2500Base
USB	USB3.2 Gen 2 x 3 USB Type C x 1 (USB4.0, DP1.4a, PD 5V/3A)
SERIAL PORT	—
VIDEO	HDMI 2.0b x 1 DP1.4a x 1
Power Input	Phoenix 2-pin Connector
Others	—
INTERNAL I/O	
USB	USB2.0 x 4
SERIAL PORT	RS-232/422/485 x 4
VIDEO	LVDS/eDP x 1 Inverter x 1 (12V/2A)
SATA	SATA3.0 x 1
AUDIO	Header x 1 (Line-in/Line-out/MIC)
DIO/GPIO	8-Bit
SMBus/I2C	SMBus/I2C x1(Default : I2C)
Touch	4/5/8 wire Controller x 1
FAN	4 wire Smart Fan x 1
SIM	Nano SIM x 1
Front Panel	PWR LED, HDD LED, PWR button, HW Reset
Others	—
EXPANSION	
Mini PCI-E/mSATA	—
M.2	M-Key 2280 x 1 (PCIex4, SATA) => CPU Gen4 B-Key 3052 x 1 (BOM Optional : PCIe x 2),default: USB3.2 Gne2+SATA E-Key 2230 x 1 (PCIe, USB2.0)

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BIO

—

Others

—

MECHANICAL

DIMENSION (L X W)

5.75" x 4" (146mm x 101.7mm)

ENVIRONMENT

OPERATING TEMPERATURE

32°F ~ 140°F (0°C ~ 60°C)

STORAGE TEMPERATURE

-40°F ~ 176°F (-40°C ~ 81°C)

OPERATING HUMIDITY

0% ~ 90% relative humidity, non-condensing

MTBF (HOURS)

TBD

CERTIFICATION

EMC

CE/FCC Class A

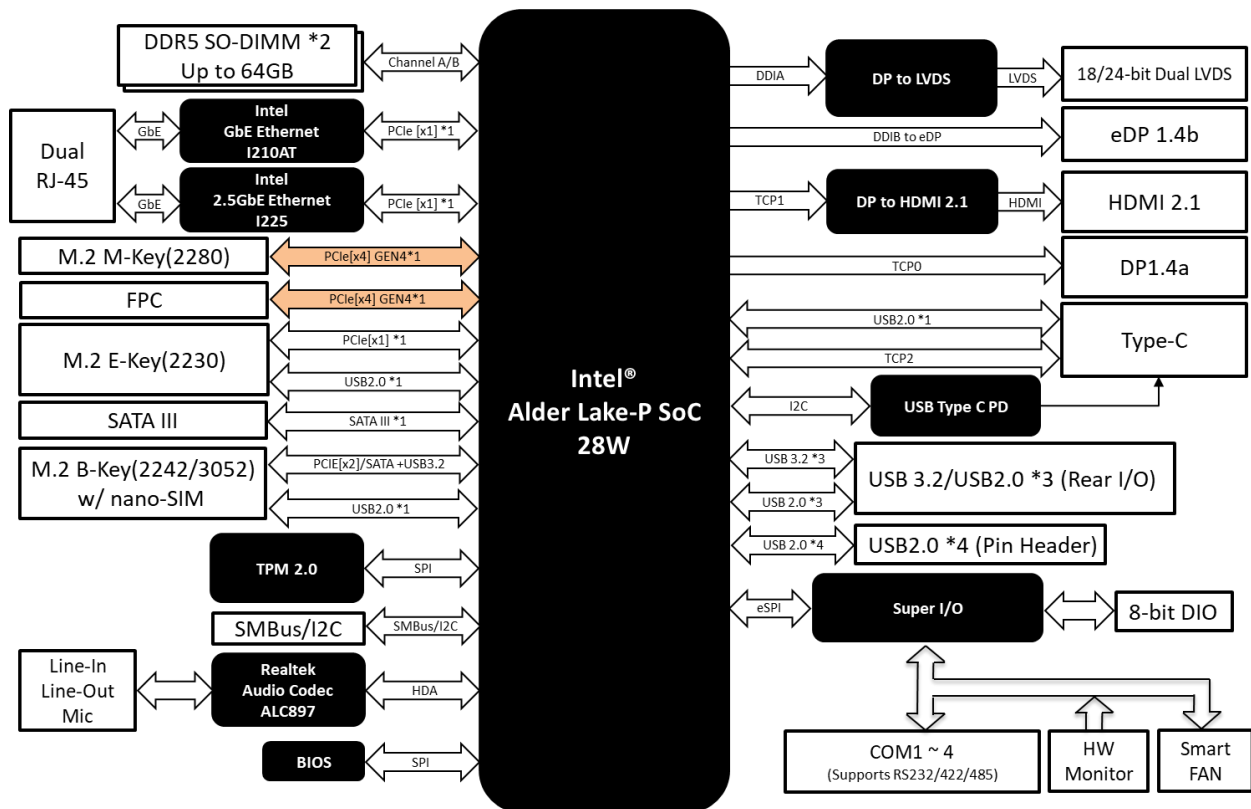
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3. BIOS Request

Manufacturer	AMI UEFI BIOS				
Core Revision	N/A				
Chipset Name	Alder Lake				
TPM	2.0				
iAMT	NO				
SIO	Fintek. .F81966	COM1~4 RS-232/422/485		Address: As Standard IRQ: As Standard	
Front Side Bus	N/A				
Graphic Option	Shared memory: Up to 512MB/ DVM T 5.0				
	TV	N/A			
	<input type="checkbox"/> CRT	<input checked="" type="checkbox"/> LCD	<input type="checkbox"/> TV	<input checked="" type="checkbox"/> HDMI	<input checked="" type="checkbox"/> CRT/LCD
	<input checked="" type="checkbox"/> CRT/DP	<input type="checkbox"/> LCD/TV	<input checked="" type="checkbox"/> LCD/HDMI	<input type="checkbox"/> TV/DP	<input type="checkbox"/> Dual LCD
	Support display for HDMI				
Ethernet	Boot from LAN support		<input type="checkbox"/> RPL ROM	<input type="checkbox"/> PXE ROM	
	Wake on LAN		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Audio	HDA	PnP			
	MPU-401	N/A			
	Game Port	N/A			
Power Supply	AT/ATX				
Power	<input type="checkbox"/> APM, Rev: <u>1.2</u>		<input checked="" type="checkbox"/> ACPI, Rev: <u>3.0</u>		
Hardware Monitor	Voltage	V5_MOD_IN, +V1.0S, +V3.3S, +VCC_CORE, +VSM, +V1.8S & Temperature from CPU / System side			
	FAN	<input checked="" type="checkbox"/> CPU	<input type="checkbox"/> System		
Watchdog Timer	Minimum	1 sec		Maximum Unit	255 sec
	255 levels and can be set by software				
Boot Device Optional	<input type="checkbox"/> FDD	<input checked="" type="checkbox"/> HDD	<input type="checkbox"/> CD-ROM	<input type="checkbox"/> uDOC	<input checked="" type="checkbox"/> LAN
	<input type="checkbox"/> USB-FDD	<input checked="" type="checkbox"/> USB-HDD	<input checked="" type="checkbox"/> USB-CD	<input type="checkbox"/> CFD	<input type="checkbox"/> Other:
Other Features					

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4. Block diagram

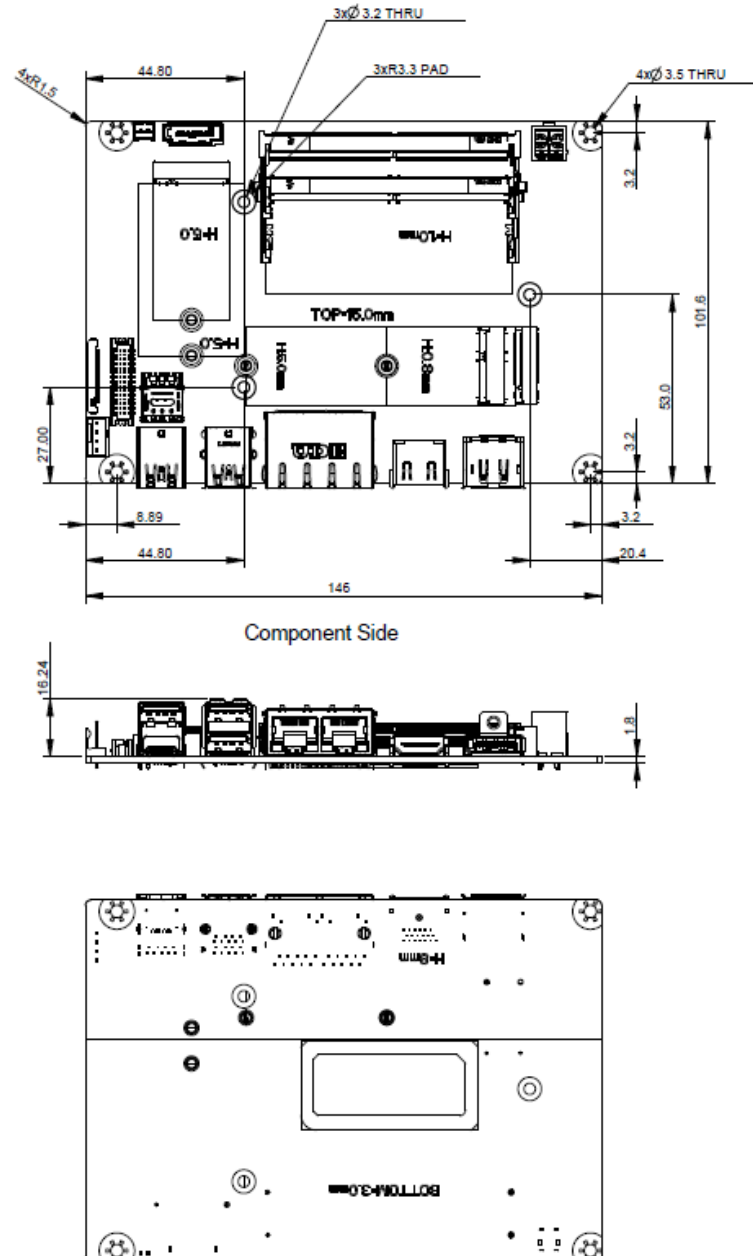


5. OS Support

Operation System	Support	Notes
Windows 10	V	64bit
Ubuntu 22.04	V	Kernel 5.15

*Ubuntu 待官方通知支援版本後，進行更新規格書。

6. Mechanical Drawing



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