IMB-1246

Mini-ITX Motherboard

KEY FEATURES

· Intel® Core™ Ultra Series 2 Processors (Arrow Lake-S) with H810 chipset

· 2 x 262-pin CSO-DIMM DDR5 6400 MHz, SO-DIMM DDR5 5600 MHz, up to 128 GB
  (64 GB per DIMM)

· 1 x PCIe x16 (Gen5), 1 x USB4/Thunderbolt™4, 2 x USB 3.2 Gen2, 2 x USB 3.2 Gen1,
  4 x USB 2.0, 1 x M.2 Key E, 1 x M.2 Key M, 4 x COM, 2 x SATA3

· 1 x Realtek 2.5 Gigabit LAN, 1 x Intel® 1 Gigabit LAN

· Supports Triple display, 2 x HDMI 2.1, 1 x DP 2.1 (from Type-C), 1 x LVDS or eDP

· ATX-PWR (24+4-pin)

SPECIFICATIONS

Form Factor

Dimensions	Mini-ITX (6.7-in x 6.7-in x 1.4-in, 17.0 cm x 17.0 cm x 3.6 cm)

Processor System

CPU	Intel® Core™ Ultra Series 2 Processors (Arrow Lake-S), up to 65W
Chipset	Intel® H810
Socket	LGA1851
BIOS	AMI SPI 256 Mbit

Memory

Technology	Dual Channel DDR5 5600/6400 MHz
Capacity	128 GB (64 GB per DIMM)
Socket	2 x 262-pin SO-DIMM

Graphics

Controller	Intel® Xᵉ LPG Graphics
HDMI	HDMI 2.1 Max resolution up to 7680x4320@60Hz
DisplayPort	DisplayPort 2.1, DP++ Max resolution up to 4096x2160@60Hz
LVDS	Dual channel 24 bit up to 1920x1200@60Hz (Connector shared with eDP)
eDP	Max resolution up to 1920x1080@60Hz (Connector shared with LVDS)
MultiDisplay	Triple Display (Included 1 output from Type-C)

Expansion Slot

PCIe	1 x PCIe x16 (Gen5)
M.2	1 x M.2 (Key E, 2230) with PCIe Gen4 x1, USB 2.0 and CNVi for Wireless

Audio

Interface	Realtek ALC897, High Definition Audio. Line-out, Mic-in

Ethernet

Controller/ Speed	LAN1: Realtek RTL8125BG with 10/100/1000/2500 Mbps LAN2: Intel® I219V with 10/100/1000 Mbps
Connector	2 x RJ-45

Rear I/O

HDMI	2 x HDMI 2.1
Ethernet	1 x 2.5 Gigabit LAN 1 x 1 Gigabit LAN
USB	1 x USB4/Thunderbolt™ 4 (5V/3A, supports DP 2.1 display output) 2 x USB 3.2 Gen2 1 x USB 3.2 Gen1 2 x USB 2.0 *For Thunderbolt support, please refer to support list.
Audio	2 (Mic-in, Line-out or Mic-in, Line-in (optional))
COM	COM1 (RS-232/422/485) COM3 (RS-232)

Internal Connector

USB	1 x USB 3.2 Gen1 (vertical con) 2 x USB 2.0 (1 x 2.54 pitch header)
COM	COM4, COM6 (RS-232)
GPIO	4 x GPI, 4 x GPO
LVDS	1 (Connector with LVDS/eDP signal, switch by BIOS)
Speaker Header	1

Storage

M.2	1 x M.2 (Key M, 2242/2280/3052) with PCIe Gen4 x4 and SATA3 (optional) for SSD
SATA	2 x SATA3 (6Gb/s)

Security

TPM	TPM Header Intel® PTT

Watchdog Timer

Output	From Super I/O to drag RESETCON#
Interval	256 Segments, 0, 1, 2, ...255sec

Power Requirements

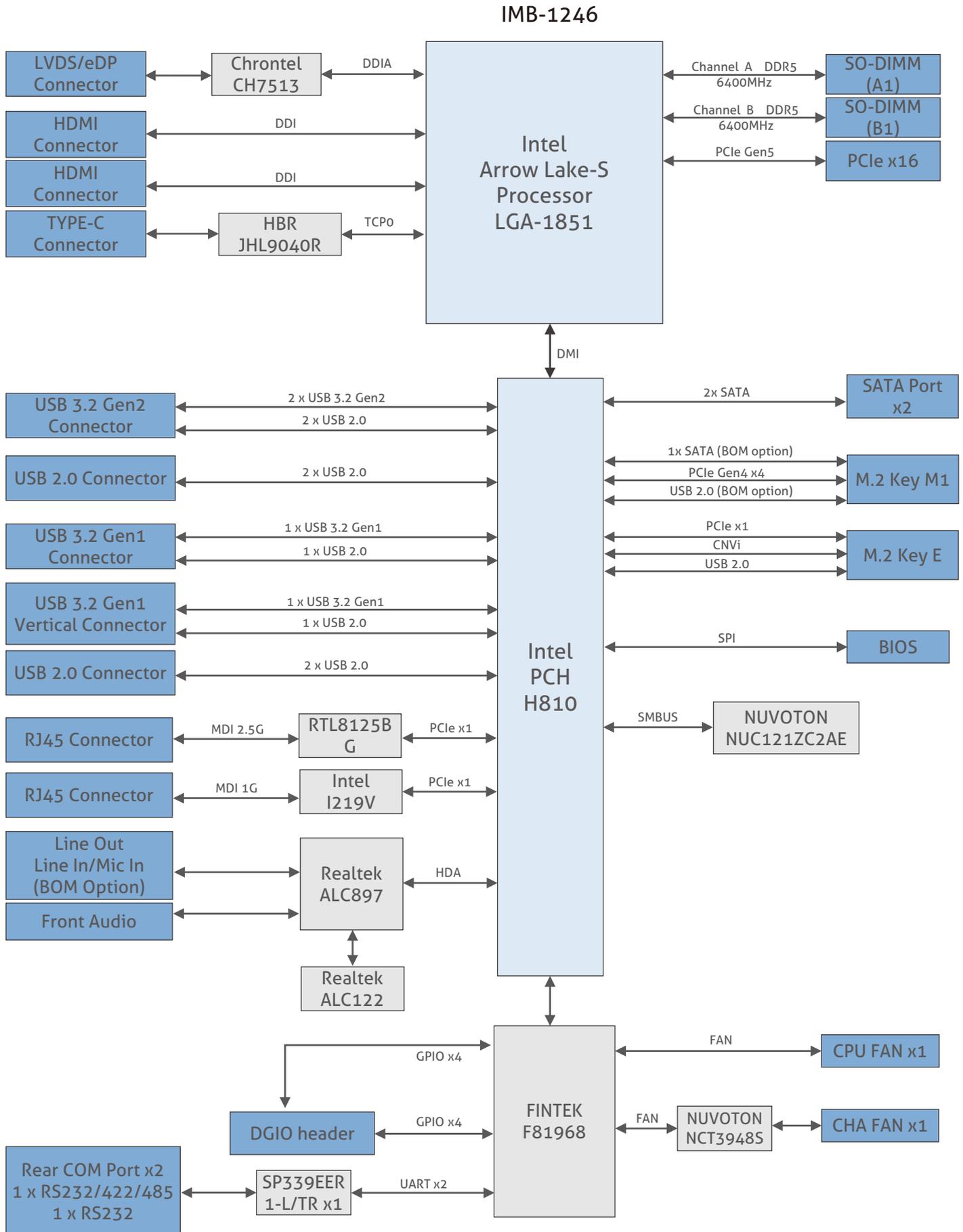|	
Input PWR	ATX PWR (24+4-pin)
Power On	AT/ATX Supported - AT : Directly PWR on as power input ready - ATX : Press button to PWR on after power input ready

Environment

Operating Temp	-20 ºC ~ 70 ºC
Storage Temp	-40 °C ~ 85 °C
Operating Humidity	5% ~ 90% (non-condensing)
Storage Humidity	5% ~ 90% (non-condensing)

IMB-1246

LVDS/eDP Connector	← Chrontel CH7513 ← DDIA →		

LVDS/eDP Connector ← **Chrontel CH7513** ← DDIA →

HDMI Connector ← DDI →

HDMI Connector ← DDI →

TYPE-C Connector ← **HBR JHL9040R** ← TCP0 →

Intel Arrow Lake-S Processor LGA-1851

Channel A DDR5 6400MHz → **SO-DIMM (A1)**

Channel B DDR5 6400MHz → **SO-DIMM (B1)**

PCIe Gen5 → **PCIe x16**

DMI

Intel PCH H810

USB 3.2 Gen2 Connector — 2 x USB 3.2 Gen2 / 2 x USB 2.0

USB 2.0 Connector — 2 x USB 2.0

USB 3.2 Gen1 Connector — 1 x USB 3.2 Gen1 / 1 x USB 2.0

USB 3.2 Gen1 Vertical Connector — 1 x USB 3.2 Gen1 / 1 x USB 2.0

USB 2.0 Connector — 2 x USB 2.0

2x SATA → **SATA Port x2**

1x SATA (BOM option) / PCIe Gen4 x4 / USB 2.0 (BOM option) → **M.2 Key M1**

PCIe x1 / CNVi / USB 2.0 → **M.2 Key E**

SPI → **BIOS**

SMBUS → **NUVOTON NUC121ZC2AE**

RJ45 Connector ← MDI 2.5G → **RTL8125BG** ← PCIe x1 →

RJ45 Connector ← MDI 1G → **Intel I219V** ← PCIe x1 →

Line Out Line In/Mic In (BOM Option) ← **Realtek ALC897** ← HDA →

Front Audio ←

Realtek ALC122

FAN → **CPU FAN x1**

FINTEK F81968

GPIO x4 — **DGIO header** — GPIO x4

FAN → **NUVOTON NCT3948S** ← **CHA FAN x1**

Rear COM Port x2 1 x RS232/422/485 1 x RS232 ← **SP339EER 1-L/TR x1** ← UART x2 →

Ordering Information

Model	IMB-1246
Chipset	H810
HDMI	2
LVDS/eDP	1/ (1)
1GbE LAN	1
2.5GbE LAN	1
COM	4
USB4/Thunderbolt™ 4	1
USB 3.2	4
USB 2.0	4
SATA III	2
M.2 E-Key	1
M.2 M-Key	1
TPM	FW TPM

Packing List (Gift)

Description	Quantity
COM Cable	1
SATA Data Cable	2
I/O Shield	1
SCREW M3*2.5	2
3.35mm M3 NUT	1

Packing List (Bulk)

Description	Quantity
I/O Shield	1
SCREW M3*2.5	2
3.35mm M3 NUT	1

I/O View