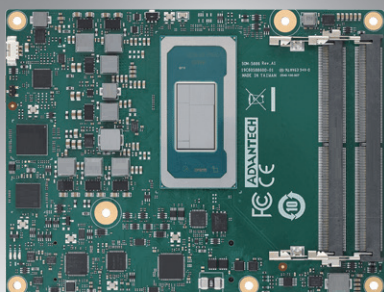


# SOM-5886

## Intel® Core™ Ultra Series 3 Processors (Panther Lake) COM Express® Basic Type 6 Module



### Features

- COM Express® R3.1 Basic Module Type 6 Pinout
- Intel® Core™ Ultra Series 3 Processors (Panther Lake), Up to 16C/20T
- Intel® ARC™ GPU up to 12Xe, 4 independent 4K display
- Integrated NPU5 50TOPS for dedicated AI acceleration,
- Dual-Channel DDR5-7200 up to 128GB CSODIMM
- Multiple I/O expansion: 2.5GbE, PCIe Gen4, USB4 & USB3.2 Gen2, SATA3.0
- Supporting Embedded Software APIs and WISE-PaaS/DeviceOn

#### Software APIs:



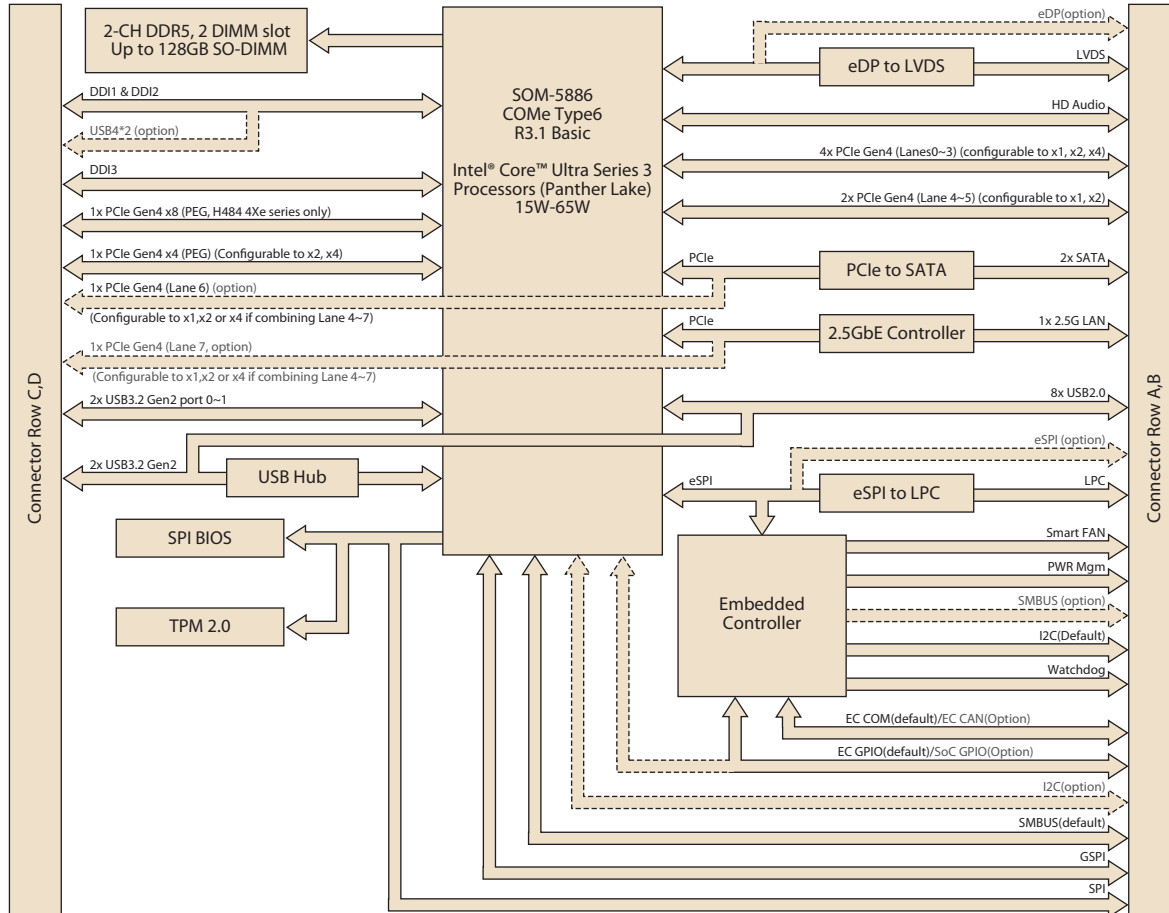
Windows SUSI API DeviceOn CE FC

### Specifications

|                |                              |                                                                                                                                             |                          |                          |                         |                        |                           |                           |
|----------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|-------------------------|------------------------|---------------------------|---------------------------|
| Form Factor    | Form Factor                  | COM Express Basic                                                                                                                           |                          |                          |                         |                        |                           |                           |
|                | Pin-out Type                 | COM Express R3.1 Type 6 compatible                                                                                                          |                          |                          |                         |                        |                           |                           |
| CPU            | CPU                          | Intel Core Ultra X9 388H                                                                                                                    | Intel Core Ultra X9 386H | Intel Core Ultra X7 358H | Intel Core Ultra 7 356H | Intel Core Ultra 5 325 | Intel Core Ultra 7 366HRE | Intel Core Ultra 5 336HRE |
|                | Cores                        | 16C (4P+8E+4LPE)                                                                                                                            | 16C (4P+8E+4LPE)         | 16C (4P+8E+4LPE)         | 16C (4P+8E+4LPE)        | 8C (4P+0E+4LPE)        | 16C (4P+8E+4LPE)          | 12C (4P+4E+4LPE)          |
|                | Base Frequency               | 2.1GHz                                                                                                                                      | 2.1GHz                   | 1.9GHz                   | 1.9GHz                  | 2.1GHz                 | TBD                       | TBD                       |
|                | Max Turbo Frequency (P-core) | 5.0GHz                                                                                                                                      | 4.8GHz                   | 4.7GHz                   | 4.6GHz                  | 4.4GHz                 | TBD                       | TBD                       |
|                | LLC                          | 18MB                                                                                                                                        | 18MB                     | 18MB                     | 18MB                    | 12MB                   | 18MB                      | 18MB                      |
|                | Processor Base Power         | 25W                                                                                                                                         | 25W                      | 25W                      | 25W                     | 25W                    | 25W                       | 25W                       |
|                | Maximum Turbo Power          | 64W, 80W                                                                                                                                    | 64W, 80W                 | 64W, 80W                 | 64W, 80W                | 55W                    | 64W, 80W                  | 64W, 80W                  |
|                | cTDP                         | 15W-65W                                                                                                                                     | 15W-65W                  | 15W-65W                  | 15W-65W                 | 12W-45W                | 15W-65W                   | 15W-65W                   |
|                | vPRO                         | Yes                                                                                                                                         | Yes                      | No                       | No                      | No                     | Yes                       | Yes                       |
|                | BIOS                         | AMI UEFI 256Mbit                                                                                                                            |                          |                          |                         |                        |                           |                           |
| Integrated GPU | Controller                   | Intel® Xe3 LPG                                                                                                                              |                          |                          |                         |                        |                           |                           |
|                | Total Xe Cores               | 12Xe (192EU)                                                                                                                                | 4Xe (64EUs)              | 12Xe (192EUs)            | 4Xe (64EUs)             | 4Xe (64EUs)            | 4Xe (64EUs)               | 4Xe (64EUs)               |
|                | Max. Frequency/PTOPS         | 2.5GHz/122TOPS                                                                                                                              | 2.5GHz/40TOPS            | 2.5GHz/122TOPS           | 2.45GHz/40TOPS          | 2.45GHz/40TOPS         | TBD                       | TBD                       |
|                | 3D/HW Acceleration           | HW Encode: Supports AVC/H264, JPEG, HEVC/H265 and AV1.<br>HW Decode: Supports MPEG2, AVC/H264, JPEG/MJPEG, HEVC/H265, VP9, AV1 and VVC/H266 |                          |                          |                         |                        |                           |                           |
| Integrated NPU | PTOPS                        | 50TOPS                                                                                                                                      | 50TOPS                   | 50TOPS                   | 50TOPS                  | 47TOPS                 | 50TOPS                    | 47TOPS                    |
| Memory         | Technology                   | DDR5                                                                                                                                        |                          |                          |                         |                        |                           |                           |
|                | Speed                        | 7200 MT/s*                                                                                                                                  |                          |                          |                         |                        |                           |                           |
|                | Max. Capacity                | Up to 128GB (2x 64GB)                                                                                                                       |                          |                          |                         |                        |                           |                           |
|                | Channel/Socket               | Dual Channel / 2 Sockets CSODIMM, 1DPC                                                                                                      |                          |                          |                         |                        |                           |                           |
| Display        | ECC Support                  | IB ECC                                                                                                                                      |                          |                          |                         |                        |                           |                           |
|                | LCD (LVDS/eDP)               | 1port LVDS Dual channel: 1920 x 1200 @60Hz/eDP 4096 x 2304 @60Hz                                                                            |                          |                          |                         |                        |                           |                           |
|                | DDI (HDMI/DisplayPort)       | - HDMI 2.1: 4096 x 2304 @ 60Hz<br>- DisplayPort 2.1 up to HBR3: 4096 x 2304 @ 60Hz                                                          |                          |                          |                         |                        |                           |                           |
|                | Multiple Display             | Quad Simultaneous Independent Display                                                                                                       |                          |                          |                         |                        |                           |                           |
| Expansion      | PEG (PCI Express Graphics)   | PEG (H484 series): PCIe Gen4, 8 lanes, Bitfurcate to 1 x8, 2 x4<br>PEG (H12Xe & H404 series): PCIe Gen4, 4 lanes, Bitfurcate to 2 x4        |                          |                          |                         |                        |                           |                           |
|                | PCI Express                  | PCIe Gen4, Up to 8 lanes & Up to 8 end devices<br>- 8 PCIe Gen4 lanes, Bitfurcate to x1, x2, x4                                             |                          |                          |                         |                        |                           |                           |
|                | Serial Bus                   | SMBus<br>I2C Bus                                                                                                                            |                          |                          |                         |                        |                           |                           |
| Ethernet       | Gigabit                      | Intel I226 controller; Speed: 10M / 100M / 1000M / 2.5G speeds                                                                              |                          |                          |                         |                        |                           |                           |
|                | SATA3.0                      | Up to 2 Ports (6Gbps)                                                                                                                       |                          |                          |                         |                        |                           |                           |
| I/O            | USB4                         | Up to 2 ports, Co-lay with DDI, Support by SOM-MZ20                                                                                         |                          |                          |                         |                        |                           |                           |
|                | USB3.2 (Gen2)                | 4 Ports (10 Gbps)                                                                                                                           |                          |                          |                         |                        |                           |                           |
|                | USB2.0                       | 8 Ports (480 Mbps)                                                                                                                          |                          |                          |                         |                        |                           |                           |
|                | SPI Bus                      | Yes                                                                                                                                         |                          |                          |                         |                        |                           |                           |
|                | GPIO                         | 8-bit, Default from EC, Option from CPU                                                                                                     |                          |                          |                         |                        |                           |                           |
|                | LPC                          | Yes                                                                                                                                         |                          |                          |                         |                        |                           |                           |
|                | Audio Interface              | HD Audio                                                                                                                                    |                          |                          |                         |                        |                           |                           |
|                | Watchdog                     | 65536 level, 0 ~ 65535 sec                                                                                                                  |                          |                          |                         |                        |                           |                           |
|                | COM Port                     | 2 Ports (2-Wire)                                                                                                                            |                          |                          |                         |                        |                           |                           |
|                | TPM                          | TPM2.0                                                                                                                                      |                          |                          |                         |                        |                           |                           |
| Power          | CAN Bus                      | Support one CAN Bus option from COM Port                                                                                                    |                          |                          |                         |                        |                           |                           |
|                | Type                         | ATX: Vin, VSB; AT: Vin                                                                                                                      |                          |                          |                         |                        |                           |                           |
|                | Supply Voltage               | Vin: 8.5V ~ 20V; VSB: 4.75V ~ 5.25V; RTC Battery: 2.0V ~ 3.3V                                                                               |                          |                          |                         |                        |                           |                           |
|                | Power Consumption (Max.)     | TBC                                                                                                                                         | TBC                      | 85.56W                   | 85.42W                  | TBC                    | TBC                       | TBC                       |
| Environment    | Power Consumption (Idle)     | TBC                                                                                                                                         | TBC                      | 18.43W                   | 20.13W                  | TBC                    | TBC                       | TBC                       |
|                | Operating Temperature        | Standard: 0 ~ 60 °C (32 ~ 140 °F)<br>Extend: -40 ~ 85 °C (-40 ~ 185 °F)                                                                     |                          |                          |                         |                        |                           |                           |
|                | Storage Temperature          | -40 ~ 85 °C (-40 ~ 185 °F)                                                                                                                  |                          |                          |                         |                        |                           |                           |
|                | Humidity                     | Operating: 40 °C@95% relative humidity, non-condensing<br>Storage: 60 °C@95% relative humidity, non-condensing                              |                          |                          |                         |                        |                           |                           |
| Mechanical     | Vibration Resistance         | 3.5 Grms                                                                                                                                    |                          |                          |                         |                        |                           |                           |
|                | Dimensions                   | 125 mm x 95 mm (4.92" x 3.74")                                                                                                              |                          |                          |                         |                        |                           |                           |

\*4800 MT/s is not POR for DDR5 for all SKUs

## Block Diagram



## Ordering Information

| Part No.          | CPU                       | Cores            | Base Freq. | Max Turbo Freq. | LLC Cache | NPU PTOPS | GPU Xe3 Cores | GPU Max Freq. (GHz) /PTOPS | Memory    | PCIe Lanes | vPro | Processor Base Power | Max. Turbo Power | cTDP    | Operating Temp. |
|-------------------|---------------------------|------------------|------------|-----------------|-----------|-----------|---------------|----------------------------|-----------|------------|------|----------------------|------------------|---------|-----------------|
| SOM-5886C9HG-U1A1 | Intel Core Ultra X9 388H  | 16C (4P+8E+4LPE) | 2.1GHz     | 5.0GHz          | 18MB      | 50        | 12Xe          | 2.5GHz/122                 | DDR5 7200 | 12         | Yes  | 25W                  | 64W, 80W         | 15W-65W | 0~60°C          |
| SOM-5886C9H-U1A1  | Intel Core Ultra 9 386H   | 16C (4P+8E+4LPE) | 2.1GHz     | 4.8GHz          | 18MB      | 50        | 4Xe           | 2.5GHz/40                  | DDR5 7200 | 20         | Yes  | 25W                  | 64W, 80W         | 15W-65W | 0~60°C          |
| SOM-5886C7HG-S9A1 | Intel Core Ultra X7 358H  | 16C (4P+4E+4LPE) | 1.9GHz     | 4.7GHz          | 18MB      | 50        | 12Xe          | 2.5GHz/122                 | DDR5 7200 | 12         | No   | 25W                  | 64W, 80W         | 15W-65W | 0~60°C          |
| SOM-5886C7H-S9A1  | Intel Core Ultra 7 356H   | 16C (4P+8E+4LPE) | 1.9GHz     | 4.6GHz          | 18MB      | 50        | 4Xe           | 2.45GHz/40                 | DDR5 7200 | 20         | No   | 25W                  | 64W, 80W         | 15W-65W | 0~60°C          |
| SOM-5886C5-U1A1   | Intel Core Ultra 5 325    | 8C (4P+0E+4LPE)  | 2.1GHz     | 4.4GHz          | 12MB      | 47        | 4Xe           | 2.45GHz/40                 | DDR5 6400 | 12         | No   | 25W                  | 55W              | 12W-45W | 0~60°C          |
| SOM-5886C7HX-U0A1 | Intel Core Ultra 7 366HRE | 16C (4P+8E+4LPE) | TBD        | TBD             | 18MB      | 50        | 4Xe           | TBD                        | DDR5 7200 | 20         | Yes  | 25W                  | 64W, 80W         | 15W-65W | -40~85°C        |
| SOM-5886C5HX-S9A1 | Intel Core Ultra 5 336HRE | 12C (4P+4E+4LPE) | TBD        | TBD             | 18MB      | 47        | 4Xe           | TBD                        | DDR5 7200 | 20         | Yes  | 25W                  | 64W, 80W         | 15W-65W | -40~85°C        |

\*Any other SKUs or combination is project based support. Please contact sales for details.

## Development Board

| Part No.         | Description                                                |
|------------------|------------------------------------------------------------|
| SOM-DB5830-00A3  | COMe Devel. Board COMe R3.1 Type6 pin-out (LVDS) 0 ~ 60 °C |
| SOM-DB5830A-00A3 | COMe Devel. Board COMe R3.1 Type6 pin-out (eDP) 0 ~ 60 °C  |

## Optional Accessories

| Part No.       | Description                                            |
|----------------|--------------------------------------------------------|
| 1970005036T011 | Semi-Cooler 125x95x33.2mm with 12V Fan (TDP up to 35W) |
| 1970006409T001 | QFCS 125x95x26.9mm (TDP up to 45W)                     |

## Packing List

| Part No.       | Description         | Quantity |
|----------------|---------------------|----------|
| -              | SOM-5886 COM module | 1        |
| 1970006397T001 | Heatspreader        | 1        |

## Embedded OS

| OS         | Part No.       | Description                         |
|------------|----------------|-------------------------------------|
| Windows 11 | 20706WLH1S0137 | img W11 24HL SOM-5886 64b 24H2 ENU  |
| Windows 11 | 20706WLV1S0137 | img W11 24VL SOM-5886 64b 24H2 ENU  |
| Windows 11 | 20706WLE1S0137 | img W11 24EL SOM-5886 64b 24H2 ENU  |
| Ubuntu     | 20706U24DS0065 | img Ubuntu D SOM-5886 64b 24.04 ENU |