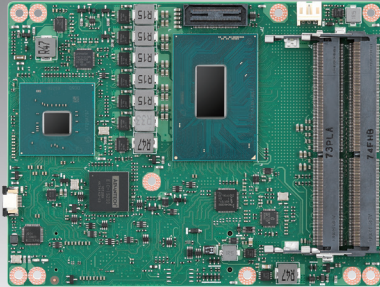


# SOM-5899

## 9<sup>th</sup>/8<sup>th</sup>Gen Intel® Xeon®/Core™ Processors COM Express Basic Module Type 6



### Features

- Intel 9<sup>th</sup>/8<sup>th</sup> Gen Xeon®/Core™ Hexa/Quad Cores + PCH QM370/CM246
- Dual channel DDR4, Max 96GB (ECC optional)
- High Speed I/O: 4 USB3.1 (Gen2), 8 PCIe1x1(Gen3), 4 SATA (Gen3)
- Three Independent Symmetrical Displays (Up to 4K)
- Supports iManager, WISE-Device-On, Embedded Software APIs and Edge AI Suite

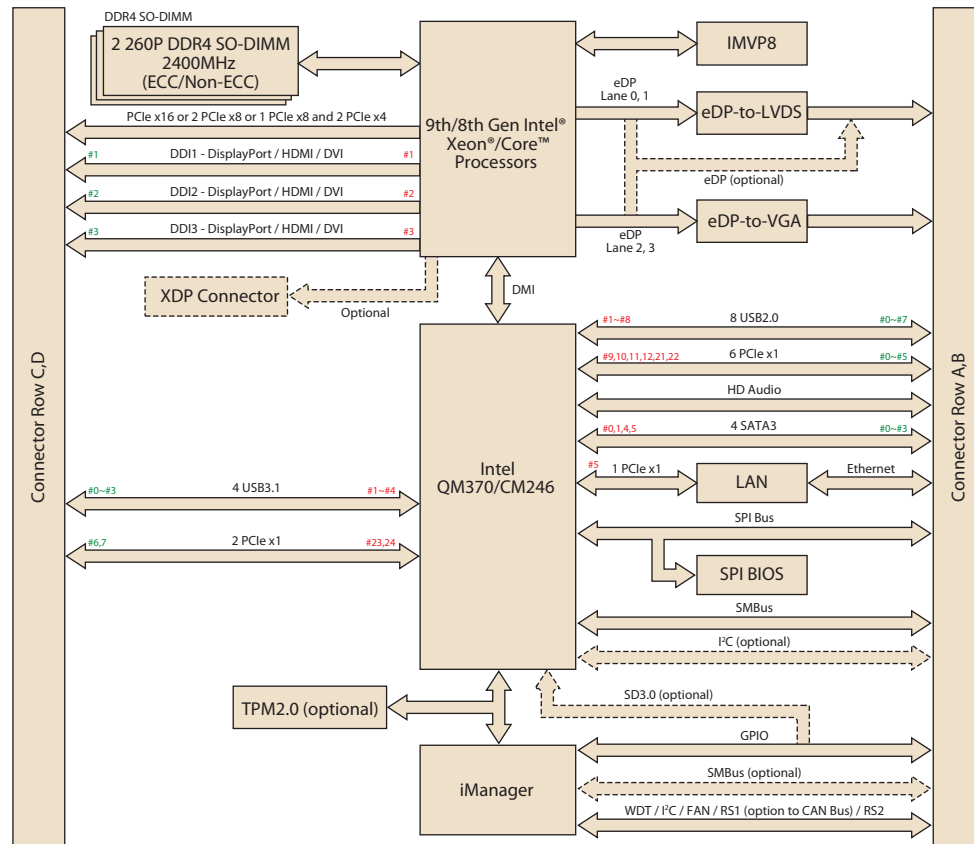
#### Software APIs:



### Specifications

|                  |   |  |          |           |           |           |                |         |          |          |          |
|------------------|---|--|----------|-----------|-----------|-----------|----------------|---------|----------|----------|----------|
| Form Factor      | Form Factor   | COM Express Basic Module   |          |           |           |           |                |         |          |          |          |
|                  | Pin-out Type  | COM Express R3.0 Type 6 pin out  |          |           |           |           |                |         |          |          |          |
| Processor System | CPU   | E-2276ME   | E-2276ML | I7-9850HE | I7-9850HL | I3-9100HL | Celeron G4930E | E-2176M | i7-8850H | i5-8400H | i3-8100H |
|                  | Base Frequency  | 2.8 GHz  | 2.0 GHz  | 2.7 GHz   | 1.9 GHz   | 1.6 GHz   | 2.4 GHz        | 2.7GHz  | 2.6GHz   | 2.5GHz   | 3.0GHz   |
|                  | Max Single Core Turbo Frequency   | 4.5 GHz  | 4.2 GHz  | 4.4 GHz   | 4.1 GHz   | 2.9 GHz   | NA             | 4.4GHz  | 4.3GHz   | 4.2GHz   | N/A      |
|                  | Cores   | 6  | 6        | 6         | 6         | 4         | 2              | 6/12    | 6/12     | 4/8      | 4/4      |
|                  | LLC   | 12MB   | 12MB     | 9MB       | 9MB       | 6MB       | 2MB            | 12MB    | 9MB      | 8MB      | 6MB      |
|                  | CPU TDP   | 45W  | 25W      | 45W       | 25W       | 25W       | 35W            | 45W/35W | 45W/35W  | 45W/35W  | 45W/35W  |
|                  | BIOS  | AMI UEFI 256Mbit   |          |           |           |           |                |         |          |          |          |
| Memory           | Technology  | DDR4 (2DPC: Up to DDR4 2400 x 3 SO-DIMM/1DPC: Up to DDR4 2666 x 2 SO-DIMM)   |          |           |           |           |                |         |          |          |          |
|                  | ECC Support   | ECC is supported with specific SKU   |          |           |           |           |                |         |          |          |          |
|                  | Max. Capacity   | 96GB   |          |           |           |           |                |         |          |          |          |
|                  | Socket  | 3 260P SO-DIMM: 2 on front side (channel 0&1) / 1 on rear side for option (channel 0)  |          |           |           |           |                |         |          |          |          |
| Graphics         | Controller  | Intel® UHD Graphics 610/630/P630   |          |           |           |           |                |         |          |          |          |
|                  | Max. Frequency  | 1.15GHz  | 1.15GHz  | 1.15GHz   | 1.15GHz   | 1.10GHz   | 1.05GHz        | 1.20GHz | 1.15GHz  | 1.10GHz  | 1.00GHz  |
|                  | Graphic Memory  | Shared Memory  |          |           |           |           |                |         |          |          |          |
|                  | 3D/HW Acceleration  | HW Encode: MPEG2, AVC/H264, VP8, JPEG, HEVC/H265, VP9<br>HW Decode: MPEG2, VC1/WMV9, AVC/H264, VP8, JPEG/MJPEG, JPEG/MJPEG, HEVC/H265 (10 bits & 8 bits), VP9  |          |           |           |           |                |         |          |          |          |
| Display          | VGA   | 1920 x 1200@60Hz   |          |           |           |           |                |         |          |          |          |
|                  | LCD   | LVDS dual channel: 1920 x 1200@60Hz (option support eDP 4096 x 2304@60Hz, 24bpp)   |          |           |           |           |                |         |          |          |          |
|                  | DDI   | 3 DDI ports support configurable HDMI/DVI/DisplayPort<br>HDMI: 4096 x 2160@24Hz, DVI: 1920 x 1200@60Hz, DP: 4096 x 2304@60Hz   |          |           |           |           |                |         |          |          |          |
|                  | Multiple Display  | Triple displays with each display combinations   |          |           |           |           |                |         |          |          |          |
| Expansion        | PCI Express x16 (Gen3)  | 1 PCIe x16 configurable to 1 x16, 2 x8, 1 x8 + 2 x4  |          |           |           |           |                |         |          |          |          |
|                  | PCI Express x1 (Gen3)   | 8 PCIe x1, configurable to x4 or x2  |          |           |           |           |                |         |          |          |          |
|                  | Audio Interface   | Intel HD Audio Interface   |          |           |           |           |                |         |          |          |          |
|                  | LPC   | Yes  |          |           |           |           |                |         |          |          |          |
| Serial Bus       | SMBus   | Yes  |          |           |           |           |                |         |          |          |          |
|                  | I <sup>2</sup> C Bus  | Yes  |          |           |           |           |                |         |          |          |          |
|                  | CAN Bus   | Yes (Optional, co-layout with COM2)  |          |           |           |           |                |         |          |          |          |
| Ethernet         | Controller  | Intel I219   |          |           |           |           |                |         |          |          |          |
|                  | Speed   | 10/100/1000 Mbps   |          |           |           |           |                |         |          |          |          |
| I/O              | SATA3.0   | 4 Ports (6Gbps)  |          |           |           |           |                |         |          |          |          |
|                  | USB3.1 (Gen2)   | 4 Ports (10Gbps)   |          |           |           |           |                |         |          |          |          |
|                  | USB2.0  | 8 Ports (480Mbps)  |          |           |           |           |                |         |          |          |          |
|                  | SPI Bus   | Yes  |          |           |           |           |                |         |          |          |          |
|                  | GPIO  | 8 bits (Option support SD Card)  |          |           |           |           |                |         |          |          |          |
|                  | Watchdog  | 65536 level, 0-65535 sec   |          |           |           |           |                |         |          |          |          |
|                  | COM Port  | 2 Ports (2-wire)   |          |           |           |           |                |         |          |          |          |
|                  | TPM   | TPM2.0 (Infineon SLB9665) (optional)   |          |           |           |           |                |         |          |          |          |
| Smart Fan        | 2 Ports: 1 port on COM module (Notice: the input voltage of fan is aligned to Vin); 1 port on carrier board |  |          |           |           |           |                |         |          |          |          |
| Power            | Type  | ATX: Vin, VSB; AT: Vin   |          |           |           |           |                |         |          |          |          |
|                  | Supply Voltage  | Vin: 8.5V ~ 20V; VSB: 4.75V ~ 5.25 V, RTC Battery: 2.0V ~ 3.3V   |          |           |           |           |                |         |          |          |          |
|                  | Power Consumption   | Max: 44.63W @ 12V (i7-8850H with 48GB DDR4 2400)<br>Idle: 6.89W @ 12V (i7-8850H with 48GB DDR4 2400)<br>*Only for reference and will depends on custom software loading, detail refer to user manual |          |           |           |           |                |         |          |          |          |
| Environment      | 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  |          |           |           |           |                |         |          |          |          |
|                  | Vibration Resistance  | 3.5 Grms   |          |           |           |           |                |         |          |          |          |
| Mechanical       | Dimensions  | 125 mm x 95 mm (4.92" x 3.74")   |          |           |           |           |                |         |          |          |          |

## Block Diagram



### \*Display Configuration Table

|          | DDI 1 | DDI 2 | DDI 3    | LVDS/eDP     | VGA  |
|----------|-------|-------|----------|--------------|------|
| Default  | DP++  | DP++  | HDMI/DVI | LVDS         | VGA  |
| Option 1 | DP++  | DP++  | HDMI/DVI | eDP (2-lane) | VGA  |
| Option 2 | DP++  | DP++  | DP++     | eDP (4-lane) | None |

Support maximum 3 independent displays simultaneously.

## Ordering Information

| Part No.           | CPU            | Freq. | Cores | CPU TDP | PCH   | DDR4 SODIMM  | Thermal Solution | Operating Temp. |
|--------------------|----------------|-------|-------|---------|-------|--------------|------------------|-----------------|
| SOM-5899RE6C-U8A3  | E-2276ME       | 2.8   | 6     | 45W     | CM246 | ECC/ non-ECC | Active           | 0 – 60 °C       |
| SOM-5899RC7Q-U7A3  | i7-9850HE      | 2.7   | 6     | 45W     | QM370 | non-ECC      | Active           | 0 – 60 °C       |
| SOM-5899RC7Q-S9A3  | i7-9850HL      | 1.9   | 6     | 25W     | QM370 | non-ECC      | Active           | 0 – 60 °C       |
| SOM-5899RC3Q-S6A3  | i3-9100HL      | 1.6   | 4     | 25W     | QM370 | non-ECC      | Active           | 0 – 60 °C       |
| SOM-5899RCRC-U4A3  | Celeron G4930E | 2.4   | 2     | 35W     | CM246 | ECC/ non-ECC | Active           | 0 – 60 °C       |
| SOM-5899RE6CX-U8A3 | E-2276ME       | 2.8   | 6     | 45W     | CM246 | ECC/ non-ECC | Active           | -40 – 85 °C     |
| SOM-5899RC7QX-U7A3 | i7-9850HE      | 2.7   | 6     | 45W     | QM370 | non-ECC      | Active           | -40 – 85 °C     |

| Part No.          | CPU      | Freq. | Cores | CPU TDP | PCH   | DDR4 SODIMM  | Thermal Solution | Operating Temperature |
|-------------------|----------|-------|-------|---------|-------|--------------|------------------|-----------------------|
| SOM-5899E6C-U7A3  | E-2176M  | 2.7   | 6     | 45W     | CM246 | ECC/ non-ECC | Active           | 0 – 60 °C             |
| SOM-5899C7Q-U6A3  | i7-8850H | 2.6   | 6     | 45W     | QM370 | non-ECC      | Active           | 0 – 60 °C             |
| SOM-5899C5Q-U5A3  | i5-8400H | 2.5   | 4     | 45W     | QM370 | non-ECC      | Active           | 0 – 60 °C             |
| SOM-5899C3Q-H0A3  | i3-8100H | 3.0   | 4     | 45W     | QM370 | non-ECC      | Active           | 0 – 60 °C             |
| SOM-5899C7QX-U6A3 | i7-8850H | 2.6   | 6     | 45W     | QM370 | non-ECC      | Active           | -40 – 85 °C           |
| SOM-5899C5QX-U5A3 | i5-8400H | 2.5   | 4     | 45W     | QM370 | non-ECC      | Active           | -40 – 85 °C           |

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

## Packing List

| Part No.       | Description              | Quantity |
|----------------|--------------------------|----------|
| -              | SOM-5899 CPU Module      | 1        |
| 1960081253T021 | Heatspreader of SOM-5899 | 1        |

## Development Board

| Part No.        | Description  |
|-----------------|--|
| SOM-DB5830-00A1 | COMe Devel. Board COMe R3.0 Type6 pin-out (SOM-DB5830) |

## Optional Accessories

| Part No.       | Description                               |
|----------------|---|
| 1960048820N001 | Semi-Cooler 125 x 95 x 33 mm with 12V fan |
| 1960094209T001 | QFCS 125 x 95 x 26.29 mm                  |

\* Test conditions follow Advantech regulations and procedures.

\* QFCS: Quadro Flow Cooling System

## Embedded OS

| OS           | Part No.       | Description                                    |
|--------------|----------------|--|
| Win10 (HL)   | 20706WX9HS0037 | Img Win10 IoT Ent_LTSB 64 bit (Xeon & Core i7) |
| Win10 (VL)   | 20706WX9VS0040 | Img Win10 IoT Ent_LTSB 64 bit (Core i5 & i3)   |
| Ubuntu 20.04 | 20706U20DS0035 | img Ubu20.4 SOM-5899 64b 2004 ENU              |

# Tento produkt můžete zakoupit u společnosti AutoCont IPC a.s.



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Váš dodavatel průmyslových počítačů, komponent a speciálních průmyslových IT systémů.

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 [www.autocont-ipc.cz](http://www.autocont-ipc.cz)



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### PŘEJÍT DO E-SHOPU

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