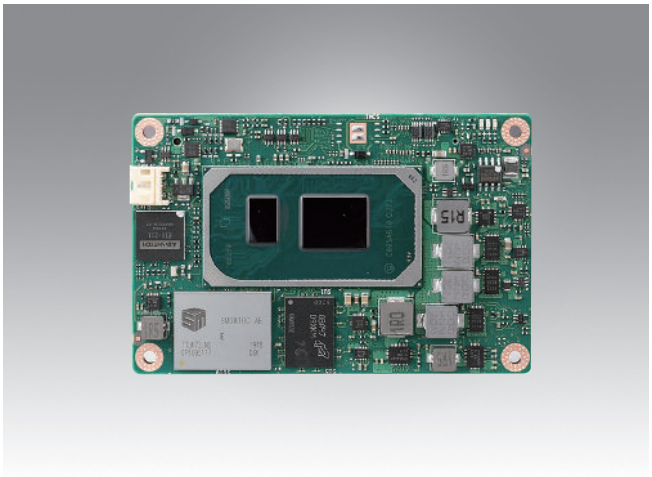
# SOM-7583

## 11th Gen. Intel® Core™ Processor U-Series (Code Name: Tiger Lake-UP3) COM Express® Mini Type 10



## Features

- Up to 4Cores Intel Core Processor, Intel Iris Xe Graphics 96EUs
- Max. 16GB LPDDR4 onboard, IBECC support. 32/64GB NVMe SSD
- Super Speed I/O Expansion: USB3.2 Gen2(10Gbps), PCIe Gen3, SATAIII
- Extended Temp. -40~85 °C
- Supports iManager, Edge-AI Suite, DeviceOn

**Software APIs:** Watchdog, I²C, SMBus, H/W Monitor, GPIO, Brightness

Windows Embedded iManager WISE-DeviceOn CE FC

## Specifications

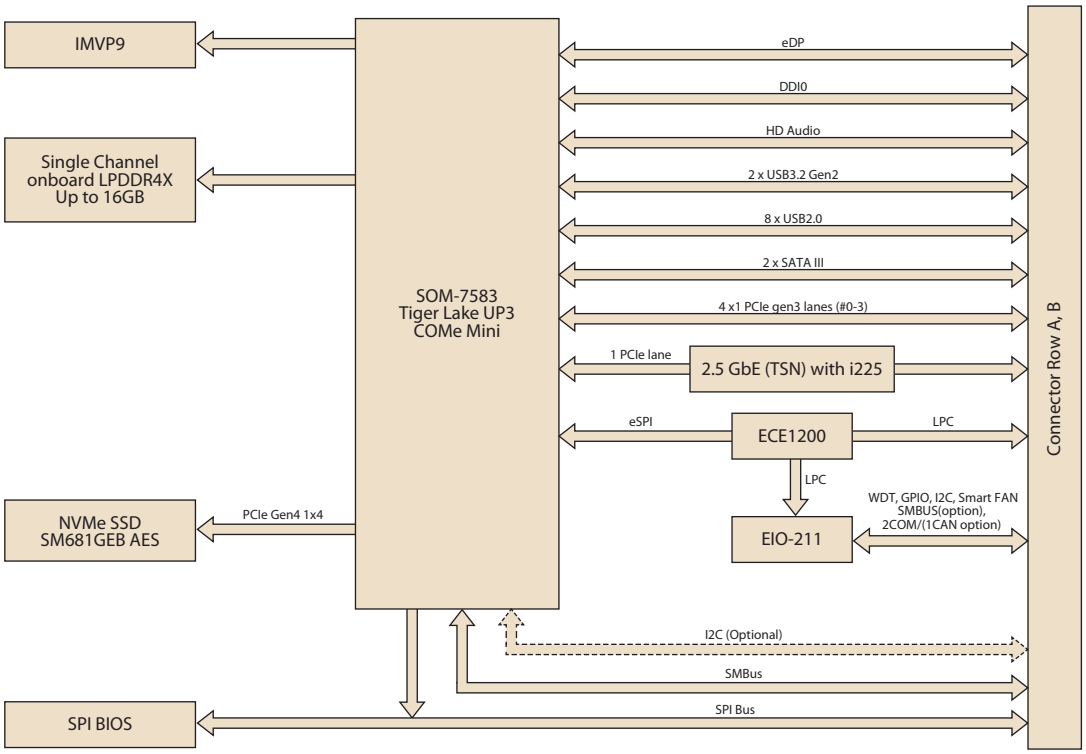
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Form Factor | Form Factor | COM Express Mini Module | | | | | | |
| | Pin-out Type | COM Express R3.0 Type 10 compatible | | | | | | |
| Processor System | CPU | Core™ i7-1185G7E | Core™ i5-1145G7E | Core™ i3-1115G4E | Celeron® 6305E | Core™ i7-1185GRE | Core™ i5-1145GRE | Core™ i3-1115GRE |
| | Base Frequency | 2.8GHz | 2.6GHz | 3.0GHz | 1.8GHz | 2.8GHz | 2.6GHz | 3.0GHz |
| | Turbo Frequency | 4.4GHz | 4.1GHz | 3.9GHz | N/A | 4.4GHz | 4.1GHz | 3.9GHz |
| | Cores | 4 | 4 | 2 | 2 | 4 | 4 | 2 |
| | Cache | 12 MB | 8 MB | 6 MB | 4 MB | 12 MB | 8 MB | 6 MB |
| | CPU TDP | 28W | 28W | 28W | 15W | 28W | 28W | 28W |
| | Configurable TDP-up Frequency | 15W/1.8GHz | 15W/1.5GHz | 15W/2.2GHz | N/A | 15W/1.8GHz | 15W/1.5GHz | 15W/2.2GHz |
| | Configurable TDP-down Frequency | 12W/1.2GHz | 12W/1.1GHz | 12W/1.7GHz | N/A | 12W/1.2GHz | 12W/1.1GHz | 12W/1.7GHz |
| Memory | Technology | LPDDR4 | | | | | | |
| | Speed | up to 4266 | | | | | | |
| | ECC Support | IBECC supported by Industrial SKU | | | | | | |
| | Onboard Memory | 8GB or 16GB | | | | | | |
| | SODIMM Memory | Not supported | | | | | | |
| Graphics | Controller | Intel® Iris® Xe Graphics/Intel® UHD Graphics | | | | | | |
| | Graphics Max Dynamic Frequency | 1.35GHz | 1.30GHz | 1.25GHz | 1.25GHz | 1.35GHz | 1.30GHz | 1.25GHz |
| | 2D&3D/HW Acceleration | HW Encode: Supports AVC, MPEG-2, HEVC, and VP9.<br>HW Decode: Supports Direct3D* 9 Video API (DXVA2),Direct3D12 Video API,Intel Media SDK,MFT (Media Foundation Transform) filters,Intel VA API | | | | | | |
| Display | VGA | Not supported | | | | | | |
| | LCD | eDP: eDP1.4: 3840x2160 @ 60Hz, 30bpp Or 4096x2304 @ 60Hz, 24bpp | | | | | | |
| | DDI | DDI port support configurable HDMI/DisplayPort<br>DisplayPort 1.4: 4096x2304 60Hz 36bpp; 5120x3200 60Hz 24bpp (with DSC: 5120x3200 120Hz 30bpp; 7680x4320 60Hz 30bpp)<br>HDMI 2.0b: 4Kx2K 48-60Hz 24bpp<br>HDMI 1.4: 4Kx2K 24-30Hz 24bpp<br>HDMI2.1 Can be supported using LSPCON (DP1.4 to HDMI2.1 protocol converter) | | | | | | |
| | Type C | DP 1.4 (option from USB Type-C); HDMI 2.0b; 1 port | | | | | | |
| | Multiple Display | Dual Display (DDI & eDP) | | | | | | |
| Expansion | PCI Express x1 (Gen3) | 1 PCIe x4. configurable to 4 PCIe x1 | | | | | | |
| Serial Bus | SMBus | Yes | | | | | | |
| | I2C Bus | Yes | | | | | | |
| Ethernet | Gigabit | Intel I225IT controller ; Speed: 10M / 100M / 1000M / 2.5G speeds | | | | | | |
| | TSN | Support by I225 | | | | | | |
| I/O | SATA3.0 | 2 Ports (6Gbps) | | | | | | |
| | USB3.2 (Gen2) | 2 Ports (10 Gbps) | | | | | | |
| | USB2.0 | 8 Ports (480 Mbps) | | | | | | |
| | LPC | Yes | | | | | | |
| | SPI Bus | Yes | | | | | | |
| | GPIO | 8-bit GPIO | | | | | | |
| | Watchdog | 65536 level, 0 ~ 65535 sec | | | | | | |
| | CAN Bus | Optional | | | | | | |
| | COM Port | 2 Ports (2-Wire) | | | | | | |
| | TPM | Intel fTPM | | | | | | |
| | 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 | | | | | | |
| Environment | Operating Temperature | Standard: 0 ~ 60 °C (32 ~ 140 °F)<br>Extend: -40 ~ 85 °C (-40 ~ 185 °F) | | | | | | |
| | Storage Temperature | Standard: 0 ~ 60 °C (32 ~ 140 °F)<br>Extend: -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 | 84 x 55 mm | | | | | | |



All product specifications are subject to change without notice.

Last updated: 4-Jan-2023

## Block Diagram




## Ordering Information

| Part Number | CPU | Base Freq. | Maximum TDP | LLC | GFX Gen.11 | IBECC | USB4 | On Board LPDDR4 | NVMe SSD | LAN speed (max.) | vPro | Thermal Solution | Operating Temp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SOM-7583C7-S8A1 | i7-1185G7E | 1.8 GHz | 28W | 12MB | 96EUs | - | N/A | 16GB | 64GB | 2.5G | Y | Active | 0 ~ 60 °C |
| SOM-7583C5-S5A1 | i5-1145G7E | 1.5 GHz | 28W | 8MB | 80EUs | - | N/A | 8GB | 32GB | 2.5G | Y | Active | 0 ~ 60 °C |
| SOM-7583C3-U2A1 | i3-1115G4E | 2.2 GHz | 28W | 6MB | 48EUs | - | N/A | 8GB | 32GB | 2.5G | - | Active | 0 ~ 60 °C |
| SOM-7583CR-S8A1 | Celeron 6305E | 1.8 GHz | 15W | 4MB | 48EUs | - | N/A | 8GB | 32GB | 2.5G | - | Active | 0 ~ 60 °C |
| SOM-7583R7X-S8A1 | i7-1185GRE | 1.8 GHz | 28W | 12MB | 96EUs | Y | N/A | 16GB i-grade | 64GB | 2.5G | Y | Active | -40 ~ 85 °C |
| SOM-7583R5X-S5A1 | i5-1145GRE | 1.5 GHz | 28W | 8MB | 80EUs | Y | N/A | 8GB i-grade | 32GB | 2.5G | Y | Active | -40 ~ 85 °C |
| SOM-7583R3X-U2A1 | i3-1115GRE | 2.2 GHz | 28W | 6MB | 48EUs | Y | N/A | 8GB i-grade | 32GB | 2.5G | - | Active | -40 ~ 85 °C |
| SOM-7583C7A-S8A1 | i7-1185G7E | 1.8 GHz | 28W | 12MB | 96EUs | - | Option* | 16GB | 64GB | 2.5G | Y | Active | 0 ~ 60 °C |

* SOM-MZ10 is not included in SOM-7583C7A-S8A1, need to be purchased from optional accessories.
* Any other sku or combination is project based support. Please contact sales for details.

## Development Board

| Part No. | Description |
|---|---|
| SOM-DB5830-00A2 | COMe R3.0 Devel. Board Type6/Type10. Rev A2 |

## Optional Accessories

| Part No. | Description |
|---|---|
| 1970004886N001 | SOM-7583 semi-cooler |
| SOM-MZ10-00A1 | SOM-MZ10 USB4 card |

## Packing List

| Part No. | Description | Quantity |
|---|---|---|
| 1970004887T001 | SOM-7583 heat spreader | 1 |

## Embedded OS

| OS | Part No. | Description |
|---|---|---|
| Win10 | 20706WX9EM0025 | img W10 19EL SOM-7583 64b 1809 ENU (Audio_NV) |
| Win10 | 20706WX9HM0021 | img W10 19HL SOM-7583 64b 1809 ENU (Audio_NV) |
| Win10 | 20706WX9VM0018 | img W10 19VL SOM-7583 64b 1809 ENU (Audio_NV) |
| Ubuntu Image | 20706U20DS0055 | img Ubun20.4 SOM-7583 64b 2004 ENU |