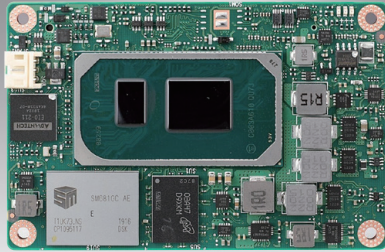# SOM-7583

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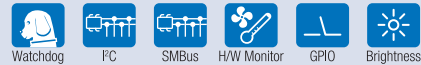
NEW

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
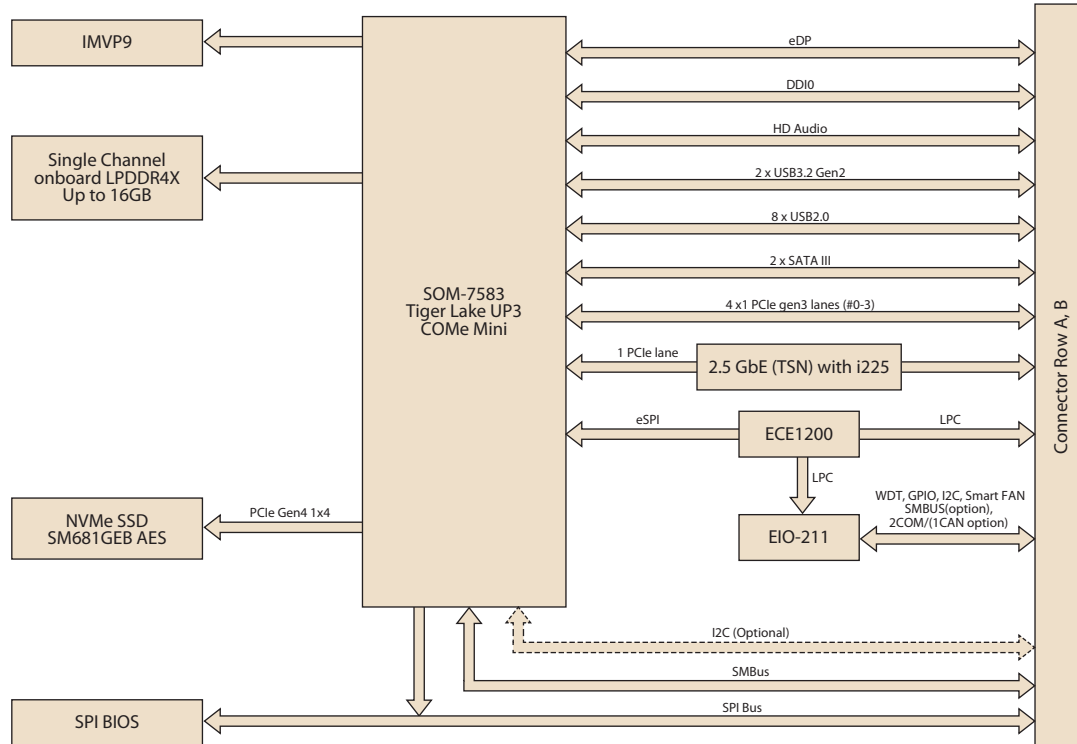- Supports iManager, Edge-AI Suite, DeviceOn

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. 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 DisplayPort 1.4: 4096x2304 60Hz 36bpp; 5120x3200 60Hz 24bpp (with DSC: 5120x3200 120Hz 30bpp; 7680x4320 60Hz 30bpp) HDMI 2.0b: 4Kx2K 48-60Hz 24bpp HDMI 1.4: 4Kx2K 24-30Hz 24bpp 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) Extend: -40 ~ 85 °C (-40 ~ 185 °F)						
	Storage Temperature	Standard: 0 ~ 60 °C (32 ~ 140 °F) Extend: -40 ~ 85 °C (-40 ~ 185 °F)						
	Humidity	Operating: 40 °C @ 95% relative humidity, non-condensing Storage: 60 °C @ 95%relative humidity, non-condensing						
	Vibration Resistance	3.5 Grms						
Mechanical	Dimensions	84 x 55 mm						

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

Packing List

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

Optional Accessories

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

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)