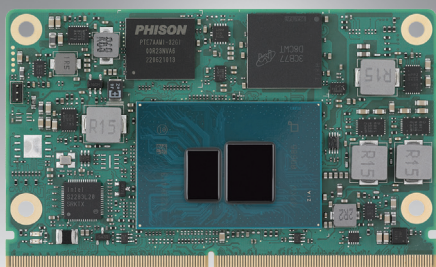


# SOM-2533

## Intel® Core-i®/Pentium®/Celeron® and Atom® x7000 Series Processors (Code Name: Alder Lake-N) SMARC Module



### Features

- SMARC2.1.1 pinout
- Intel® Core-i®/Pentium®/Celeron® and Atom® x7000 Series Processors
- Single-CH LPDDR5 4800MT/s up to 16GB, support IB ECC
- Triple displays up to 4K2K (DP++, HDMI, LVDS/eDP/MIPI-DSI)
- Multiple I/O expansion: PCIe gen3, USB3.2 Gen2, SATA, CAN-bus
- On board eMMC up to 64GB (Optional)
- Supports iManager, Embedded Software APIs and Wise-DeviceOn

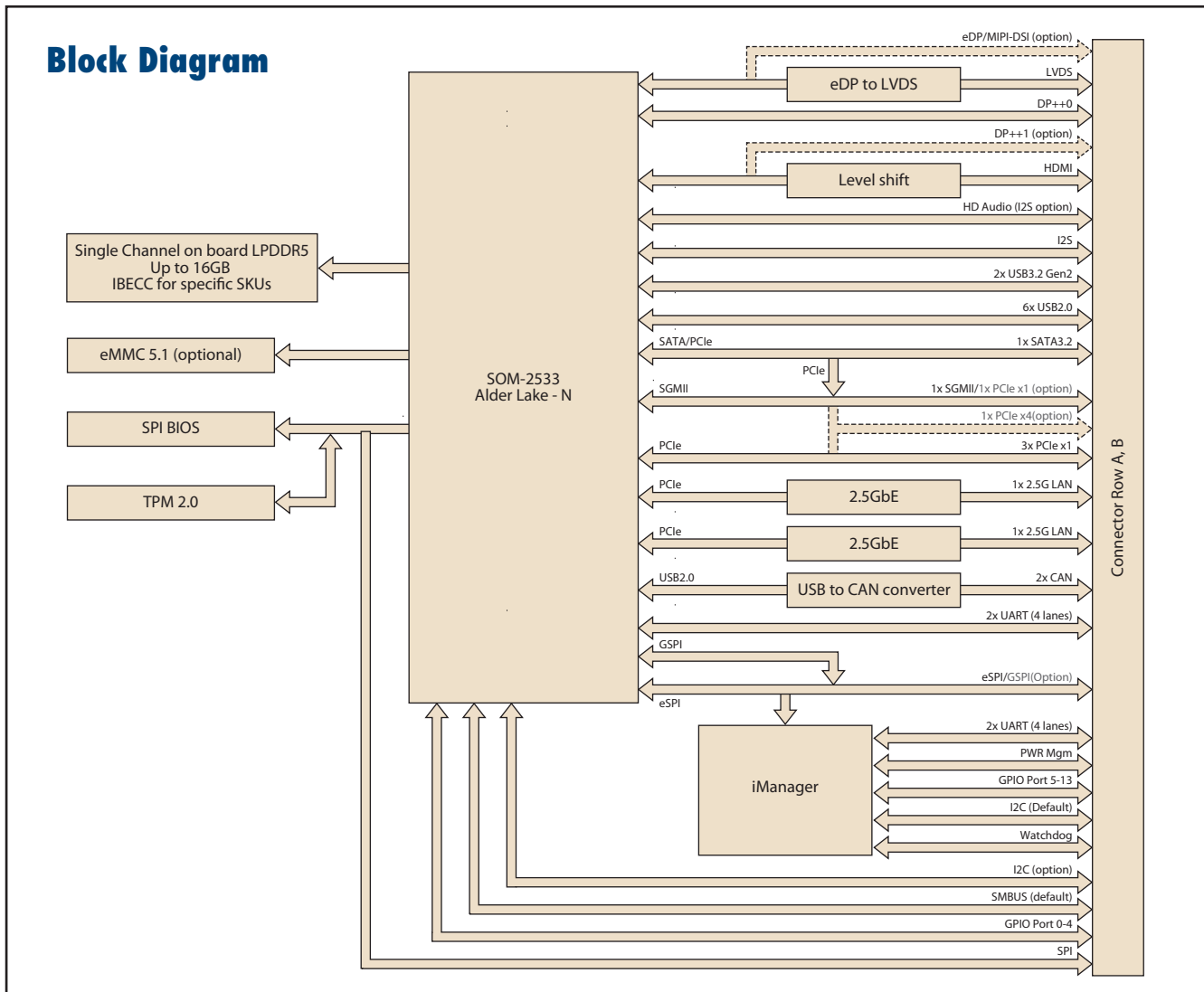
#### Software APIs:



### Specifications

Form Factor	Form Factor	SMARC						
	Pin-out Type	SMARC2.1.1						
Processor System	CPU	N50	N97	N200	i3-N305	x7211E	x7425E	x7213E
	Base Frequency	1.0 GHz	2.0 GHz	1.0 GHz	1.0/1.8 GHz	1.0 GHz	1.5 GHz	1.7 GHz
	Max Single Core Turbo Frequency	3.4 GHz	3.6 GHz	3.7 GHz	3.8 GHz	3.2 GHz	3.4 GHz	3.2 GHz
	Cores	2	4	4	8	2	4	2
	LLC	6 MB	6 MB	6 MB	6 MB	6 MB	6 MB	6 MB
	CPU TDP	6W	12W	6W	9/15W	6W	12W	10W
	IB ECC	N/A	N/A	N/A	N/A	Yes	Yes	Yes
	BIOS	AMI UEFI 256Mbit						
Memory	Technology	LPDDR5						
	Speed	4800 MT/s						
	Max. Capacity	Up to 16GB						
	Channel/Socket	Single Channel / Memory down						
Graphics	ECC Support	IB ECC Supported by Specific CPU SKUs						
	Controller	Intel® UHD Graphics						
	EU	16	24	32	32	16	24	16
	Base. Frequency	600 MHz	850 MHz	450 MHz	1.0 GHz	600 MHz	800 MHz	800 MHz
	Max. Frequency	750 MHz	1.2 GHz	750 MHz	1.25 GHz	1.0 GHz	1.0 GHz	1.0 GHz
	3D/HW Acceleration	Open GL 4.6, DirectX 12.1 Vulkan 1.2 (Windows) Mesa 3D, Open GL 4.6, Vulkan 1.2 (Linux)						
Display	LCD (LVDS/eDP)	1port LVDS Dual Channel: 1920 x 1200 @60Hz/eDP 1920 x 1080 @60Hz (Up to eDP 4096 x 2304 by specific SKU) Option Support MIPI-DSI 1920 x 1080 @60Hz						
	DDI (HDMI/DisplayPort)	1 DDI Port Support Configurable HDMI/DisplayPort -HDMI 2.0b: 4096 x 2034 @ 60Hz -DisplayPort 1.4: 4096 x 2034 @ 60Hz						
	HDMI	HDMI 2.0b: 4096 x 2034 @ 60Hz						
	Multiple Display	Triple Simultaneous Independent Display						
Expansion	PCI Express x1 (Gen3)	3 PCIe x1 by default, 1 PCIe x1 by option; Support Configurable 1 PCIe x4 by option						
	Audio Interface	HD Audio/ Up to 2 I2S						
	eSPI	Yes						
Serial Bus	SMBus	Yes						
	I2C Bus	Yes						
Ethernet	Gigabit	2 Ports support 10M / 100M / 1000M / 2.5G speeds, Support TSN by specific SKU; 1 SERDES reserved by option						
I/O	SATA3.0	1 Port (6 Gbps)						
	USB3.2 (Gen2)	2 Ports (10 Gbps)						
	USB2.0	6 Ports (480 Mbps)						
	SPI Bus	Yes. For BIOS EEPROM						
	GPIO	8-bit						
	Onboard Storage	eMMC up to 64GB (Optional)						
	Watchdog	65536 level, 0 ~ 65535 sec						
	COM Port	2 Ports (4-Wire), 2 Ports (2-Wire)						
	TPM	TPM2.0						
	CAN Bus	2 Ports						
Power	Type	ATX: Vin, VSB; AT: Vin						
	Supply Voltage	Vin: 4.75-5.25V, RTC Battery: 2.0V ~ 3.3V						
	Power Consumption (Max.)	TBD						
	Power Consumption (Idle)	TBD						
Environment	Operating Temperature	Standard: 0 ~ 60 °C (32 ~ 140 °F)						
	Storage Temperature	-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 mm x 50 mm						

## Block Diagram



## Ordering Information

P/N	CPU	Core	CPU TDP	GFX HFM	GFX Burst Mode	RAM	EMMC	LVDS/eDP	IBECC	TSN	LAN	CAN	Thermal Solution	Operating Temp
SOM-2533DNCC-S8A1	i3-N305	8	9/15W	1.0GHz	1.25GHz	16GB	64GB	LVDS	Yes	N/A	2 ports	2 ports	Passive	0 - 60 °C
SOM-2533CCBC-S5A1	x7425E	4	12W	800MHz	1.0GHz	8GB	32GB	LVDS	Yes	Yes	2 ports	2 ports	Passive	0 - 60 °C
SOM-2533CNOC-S8A1	i3-N305	8	9/15W	1.0GHz	1.25GHz	8GB	N/A	eDP	Yes	N/A	1 ports	N/A	Passive	0 - 60 °C
SOM-2533BNOC-U0A1	N97	4	12W	850MHz	1.2GHz	4GB	N/A	eDP	Yes	N/A	1 ports	N/A	Passive	0 - 60 °C
SOM-2533BNOC-S0A1	N200	4	6W	450MHz	1.2GHz	4GB	N/A	eDP	Yes	N/A	1 ports	N/A	Passive	0 - 60 °C
SOM-2533BCOC-S7A1	x7213E	2	10W	800MHz	1.0GHz	4GB	N/A	eDP	Yes	Yes	1 ports	N/A	Passive	0 - 60 °C
SOM-2533ACOC-S0A1	x7211E	2	6W	600MHz	1.0GHz	4GB	N/A	eDP	Yes	Yes	1 ports	N/A	Passive	0 - 60 °C
SOM-2533ANOC-S0A1	N50	2	6W	600MHz	1.2GHz	4GB	N/A	eDP	Yes	N/A	1 ports	N/A	Passive	0 - 60 °C

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

## Development Board

Part No.	Description
SOM-DB2510-00A1	SMARC R2.1 Devel. Board Rev. A1
SOM-DB2510A-00A1	SMARC R2.1 Devel. Board Rev. A1 w/eDP

## Optional Accessories

Part No.	Description
1970005111T001	Semi-Heatsink

## Packing List

Part No.	Description	Quantity
-	SOM-2533 COM module	1
TBD	Heatspreader	1

## Embedded OS

OS	Part No.	Description
Win10	TBD	TBD