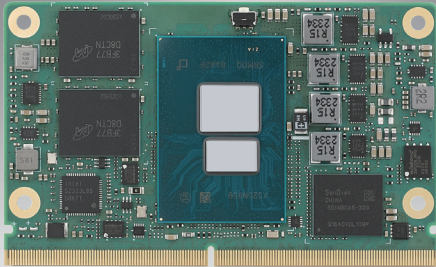


# SOM-2533 / R

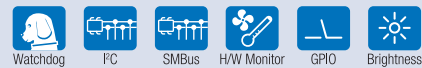
## Intel® Core-i®/Pentium®/Celeron® and Atom® x7000 Series Processors (Code Name: Alder Lake-N/Amston Lake) SMARC Module



### 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

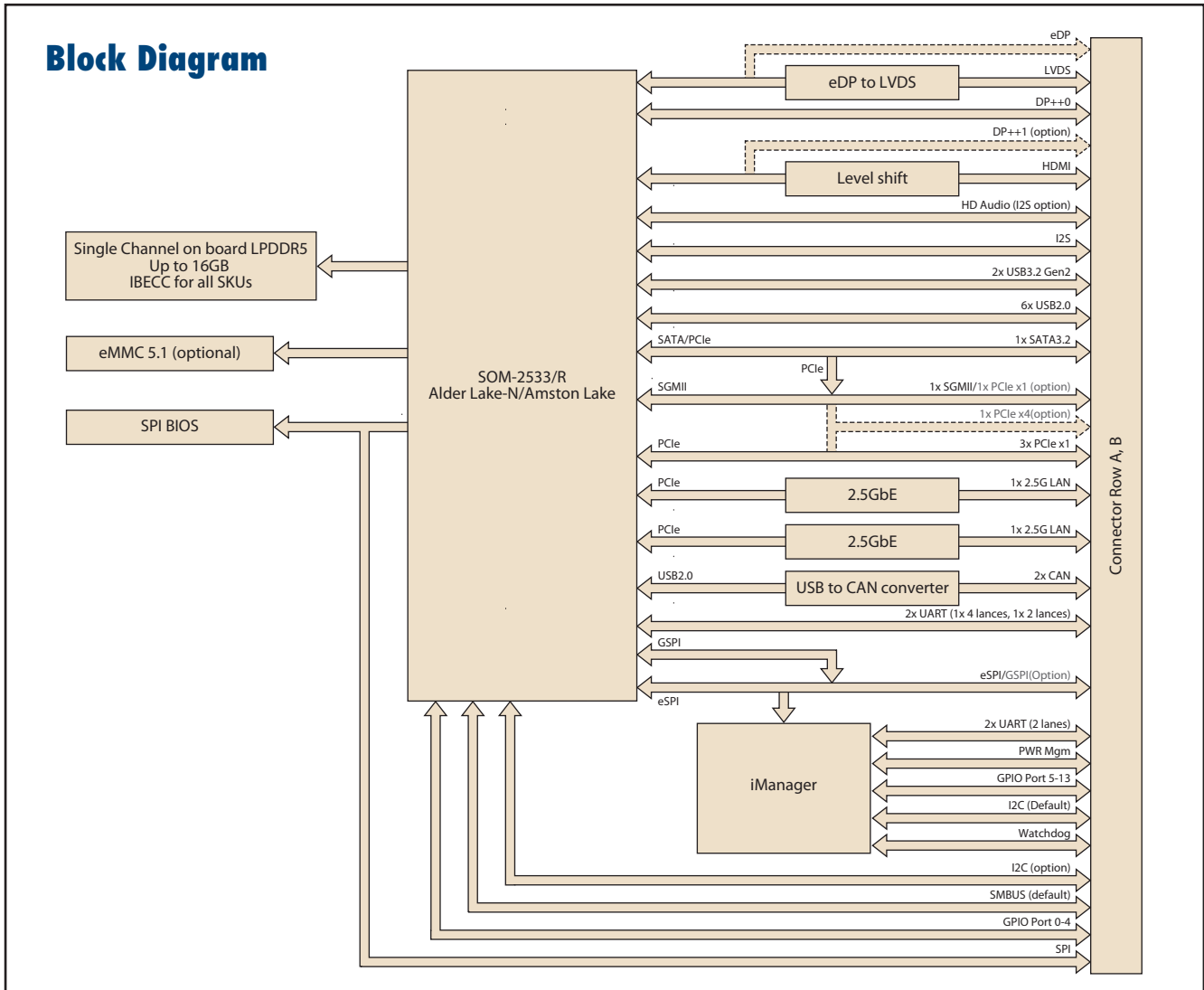
#### Software APIs:



### Specifications

|                  |                                 |  |  |         |             |         |         |         |         |
|------------------|---------------------------------|--|--|---------|-------------|---------|---------|---------|---------|
| Form Factor      | Form Factor                     | SMARC  |  |         |             |         |         |         |         |
|                  | Pin-out Type                    | SMARC2.1.1   |  |         |             |         |         |         |         |
| Processor System | CPU                             | N50  | N97  | N200    | i3-N305     | x7425E  | x7832RE | x7433RE | x7211RE |
|                  | Base Frequency                  | 1.0 GHz  | 2.0 GHz  | 1.0 GHz | 1.0/1.8 GHz | 1.5 GHz | 1.3 GHz | 1.5 GHz | 1.0 GHz |
|                  | Max Single Core Turbo Frequency | 3.4 GHz  | 3.6 GHz  | 3.7 GHz | 3.8 GHz     | 3.4 GHz | 3.6 GHz | 3.4 GHz | 3.2 GHz |
|                  | Cores                           | 2  | 4  | 4       | 8           | 4       | 8       | 4       | 2       |
|                  | LLC                             | 6 MB   | 6 MB   | 6 MB    | 6 MB        | 6 MB    | 6 MB    | 6 MB    | 6 MB    |
|                  | CPU TDP                         | 6W   | 12W  | 6W      | 9/15W       | 12W     | 12W     | 9W      | 6W      |
|                  | IB ECC                          | Yes  | Yes  | Yes     | Yes         | Yes     | 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   |  |         |             |         |         |         |         |
|                  | ECC Support                     | IB ECC Supported by Specific CPU SKUs  |  |         |             |         |         |         |         |
| Graphics         | Controller                      | Intel® UHD Graphics  |  |         |             |         |         |         |         |
|                  | EU                              | 16   | 24   | 32      | 32          | 24      | 32      | 32      | 16      |
|                  | Base. Frequency                 | 600 MHz  | 850 MHz  | 450 MHz | 1.0 GHz     | 800 MHz | 800 MHz | 600 MHz | 400 MHz |
|                  | Max. Frequency                  | 750 MHz  | 1.2 GHz  | 750 MHz | 1.25 GHz    | 1.0 GHz | 1 GHz   | 800 MHz | 800 MHz |
|                  | 3D/HW Acceleration              | Open GL 4.6, DirectX 12.1 Vulkan 1.2 (Windows)<br>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) |         |             |         |         |         |         |
| Expansion        | DDI (HDMI/DisplayPort)          | 1 DDI Port Support Configurable HDMI/DisplayPort<br>-HDMI 2.0b: 4096 x 2034 @ 60Hz<br>-DisplayPort 1.4: 4096 x 2034 @ 60Hz |  |         |             |         |         |         |         |
|                  | HDMI                            | HDMI 2.0b: 4096 x 2034 @ 60Hz  |  |         |             |         |         |         |         |
|                  | Multiple Display                | Triple Simultaneous Independent Display  |  |         |             |         |         |         |         |
|                  | PCI Express x1 (Gen3)           | 3 PCIe x1 by default, 1 PCIe x1 by option; Support Configurable 1 PCIe x4 by option  |  |         |             |         |         |         |         |
| Serial Bus       | Audio Interface                 | HD Audio/ Up to 2 I2S  |  |         |             |         |         |         |         |
|                  | eSPI                            | Yes  |  |         |             |         |         |         |         |
|                  | SMBus                           | Yes  |  |         |             |         |         |         |         |
| Ethernet         | I2C Bus                         | Yes  |  |         |             |         |         |         |         |
|                  | 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                        | 1 Ports (4-Wire), 3 Ports (2-Wire)   |  |         |             |         |         |         |         |
|                  | TPM                             | fTPM   |  |         |             |         |         |         |         |
|                  | 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)<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                      | 84 mm x 50 mm  |  |         |             |         |         |         |         |

## Block Diagram



## Ordering Information

| Part No.           | CPU     | Core | CPU TDP | CPU Base Freq. | Max Single Core Turbo Frequency. | GFX HFM | GFX Burst Mode | RAM  | EMMC | LVDS/eDP | TSN | LAN     | CAN     | Thermal solution | Operating Temp. |
|--------------------|---------|------|---------|----------------|----------------------------------|---------|----------------|------|------|----------|-----|---------|---------|------------------|-----------------|
| SOM-2533DNCC-S8A1  | i3-N305 | 8    | 9/15W   | 1.0/1.8 GHz    | 3.8 GHz                          | 1.0 GHz | 1.25 GHz       | 16GB | 64GB | LVDS     | N/A | 2 Ports | 2 Ports | Passive          | 0 – 60°C        |
| SOM-2533CCBC-S5A1  | x7425E  | 4    | 12W     | 1.5 GHz        | 3.4 GHz                          | 800 MHz | 1.0 GHz        | 8GB  | 32GB | LVDS     | Yes | 2 Ports | 2 Ports | Passive          | 0 – 60°C        |
| SOM-2533CNOC-S8A1  | i3-N305 | 8    | 9/15W   | 1.0/1.8 GHz    | 3.8 GHz                          | 1.0 GHz | 1.25 GHz       | 8GB  | 32GB | LVDS     | N/A | 2 Ports | N/A     | Passive          | 0 – 60°C        |
| SOM-2533BNOC-U0A1  | N97     | 4    | 12W     | 2.0 GHz        | 3.6 GHz                          | 850 MHz | 1.2 GHz        | 4GB  | 32GB | LVDS     | N/A | 2 Ports | N/A     | Passive          | 0 – 60°C        |
| SOM-2533BNOC-S0A1  | N200    | 4    | 6W      | 1.0 GHz        | 3.7 GHz                          | 450 MHz | 750 MHz        | 4GB  | 32GB | LVDS     | N/A | 2 Ports | N/A     | Passive          | 0 – 60°C        |
| SOM-2533ANOC-S0A1  | N50     | 2    | 6W      | 1.0 GHz        | 3.4 GHz                          | 600 MHz | 750 MHz        | 4GB  | 32GB | eDP      | N/A | 1 Ports | N/A     | Passive          | 0 – 60°C        |
| SOM-2533RDCBX-S3A1 | x7835RE | 8    | 12W     | 1.3 GHz        | 3.6 GHz                          | 800 MHz | 1.0 GHz        | 16GB | 32GB | LVDS     | Yes | 2 Ports | 2 Ports | Passive          | -40 – 85°C      |
| SOM-2533RCCBX-S5A1 | x7433RE | 4    | 9W      | 1.5 GHz        | 3.4 GHz                          | 600 MHz | 800 MHz        | 8GB  | 32GB | LVDS     | Yes | 2 Ports | 2 Ports | Passive          | -40 – 85°C      |
| SOM-2533RBCOX-S0A1 | x7211RE | 2    | 6W      | 1.0 GHz        | 3.2 GHz                          | 400 MHz | 800 MHz        | 4GB  | N/A  | LVDS     | Yes | 2 Ports | N/A     | Passive          | -40 – 85°C      |

## 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   |
|----------------|---------------|
| 1970005111T011 | Semi-Heatsink |

## Packing List

| Part No.       | Description         | Quantity |
|----------------|---------------------|----------|
| -              | SOM-2533 COM module | 1        |
| 1970005871T001 | Heatspreader        | 1        |

## Embedded OS

| OS           | Part No        | Description                        |
|--------------|----------------|------------------------------------|
| Wn10 (VL)    | 20706WX1VS0081 | img W10 21VL SOM-2533 64b 21H2 ENU |
| Wn10 (HL)    | 20706WX1HS0081 | img W10 21HL SOM-2533 64b 21H2 ENU |
| Wn10 (EL)    | 20706WX1ES0081 | img W10 21EL SOM-2533 64b 21H2 ENU |
| Ubuntu 22.04 | 20706U22DS0040 | img Ubuntu SOM-2533 64b 22.04 ENU  |

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



## AutoCont IPC a.s.

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

 Uhlířská 1064/3, 710 00 Ostrava, Česká republika

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 +420 552 301 002

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



### PRŮMYSLOVÉ POČÍTAČE

*fanless embedded PC, do racku, ...*



### POČÍTAČE S DISPLEJEM

*panelové PC, terminály, do vozidel, ...*



### AUTOMATIZACE A SBĚR DAT

*převodníky, karty, moduly, switche, ...*



### PERIFERIE A KOMPONENTY

*monitory, klávesnice, desky, skříně, ...*



### NOTEBOOKY A TABLETY

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### INFORMAČNÍ KIOSKY

*interiérové, venkovní, ...*



### MEDICÍNSKÁ TECHNIKA

*počítače, tablety, LCD, klávesnice, ...*



### SOFTWAREVÁ ŘEŠENÍ

*pro výrobu, zaměstnance, kiosky, ...*



### PŘEJÍT DO E-SHOPU

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



### DOPRAVA ZDARMA

Doprava zdarma v ČR a SR při objednávce nad 10 000 Kč bez DPH nebo nad 400 EUR.



### PRODLOUŽENÁ ZÁRUKA

Záruka 2 roky na vyráběné počítače s možností jejího prodloužení až na 5 let.



### ODMĚNA ZA VĚRNOST

Pravidelní zákazníci u nás nakupují za nižší ceny. Výše slevy se odvíjí od realizovaného obrátu.



### SERVIS ON-SITE A IN-TIME

K projektovým dodávkám nabízíme rozšířenou podporu a servis s garancí výměny zařízení do 48 hodin.