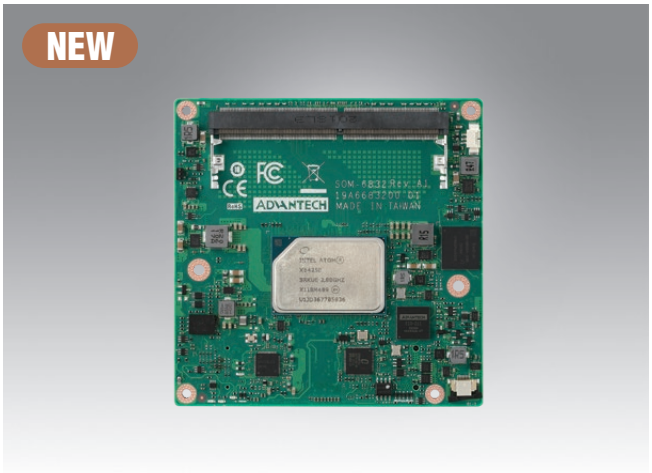
SOM-6832

Intel® Pentium®/Celeron® and Atom® x6000 Series Processors (Code Name: Elkhart Lake) COM Express® Compact Type6



Features

- COM Express® R3.0 Compact Module Type 6 Pinout
- Intel® Pentium®/Celeron® and Atom® x6000 Series (Elkhart Lake) Processors
- Dual Channel up to 32GB DDR4-3200 and IBECC Supported by Specific SKUs
- Supports up to 3 simultaneous display: LVDS/eDP, HDMI/DisplayPort
- Supports onboard eMMC Storage and 2.5GbE
- Supports iManager, WISE-DeviceOn, and Embedded Software APIs

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

Windows Embedded iManager WISE-DeviceOn CE FC

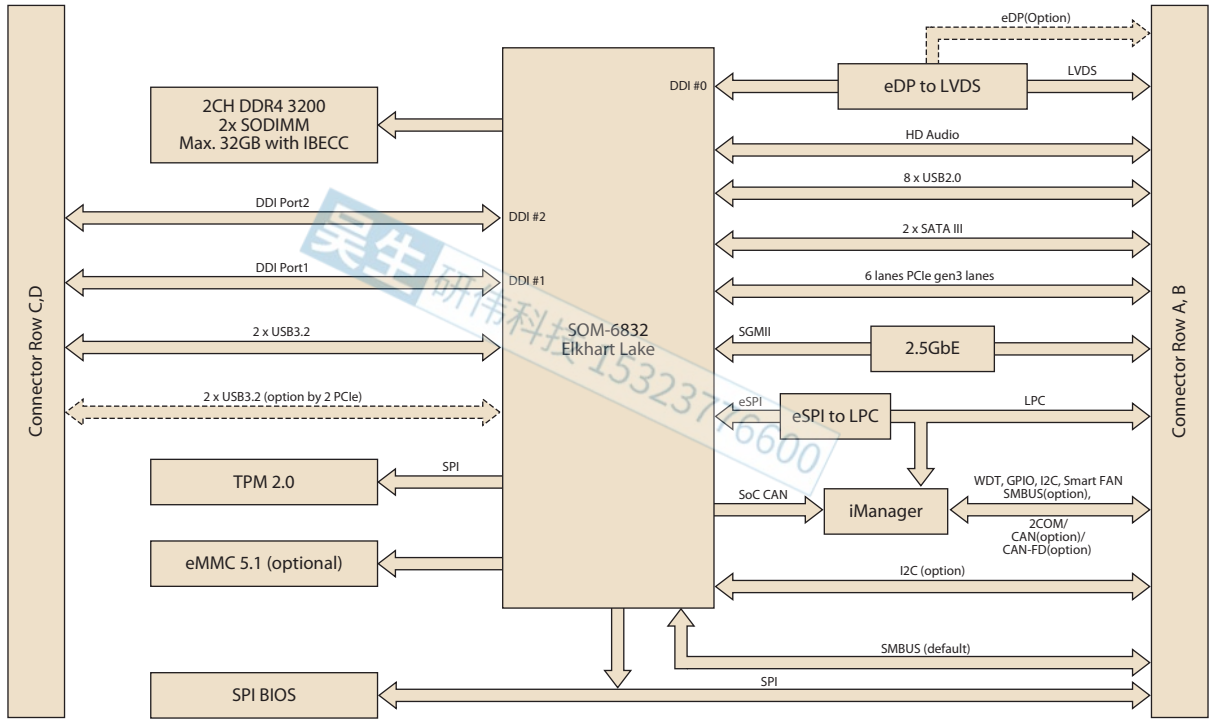
Specifications

Form Factor	Form Factor	COM Express Compact							
	Pin-out Type	COM Express R3.0 Type 6 compatible							
Processor System	CPU	Pentium® N6415	Pentium® J6426	Atom® x6425E	Atom® x6413E	Atom® x6211E	Atom® x6425RE	Atom® x6414RE	Atom® x6200FE
	Base Frequency	1.2 GHz	2.0 GHz	2.0 GHz	1.5 GHz	1.3 GHz	1.9 GHz	1.5 GHz	1.0 GHz
	Max Single Core Turbo Frequency	3.0 GHz	3.0 GHz	3.0 GHz	3.0 GHz	3.0 GHz	N/A	N/A	N/A
	Cores	4	4	4	4	2	4	4	2
	LLC	1.5 MB	1.5 MB	1.5 MB	1.5 MB	1.5 MB	1.5 MB	1.5 MB	1.5 MB
	CPU TDP	6.5W	10W	12W	9W	6W	12W	9W	4.5W
	IBECC	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
	BIOS	AMI UEFI 256Mbit							
Memory	Technology	DDR4							
	Speed	3200 MT/s							
	Max. Capacity	Up to 32GB							
	Socket	2 x 260P SODIMM (Dual Channel)							
	ECC Support	IBECC supported by Specific CPU SKUs							
Graphics	Controller	Intel® UHD Graphics							N/A
	Base. Frequency	350 MHz	400 MHz	500 MHz	500 MHz	350 MHz	400 MHz	400 MHz	N/A
	Max. Frequency	800 MHz	850 MHz	750 MHz	750 MHz	750 MHz	N/A	N/A	N/A
	3D/HW Acceleration	OpenGL* 4.5, DirectX* 12, OpenCL*1.2, Vulkan 1.1							
Display	LCD (LVDS/eDP)	LVDS dual channel: 1920 x 1200@60Hz (option support eDP 4096 x 2304 @ 60Hz)							
	DDI (HDMI/DisplayPort)	2 DDI ports support configurable HDMI/DisplayPort -HDMI 2.0b: 4096 x 2160 @ 60Hz -DisplayPort 1.4: 4096 x 2160 @ 60Hz							
	Multiple Display	Triple Simultaneous Independent Display							
	PCI Express x1 (Gen3)	6 PCIe x1							
	Audio Interface	HD Audio							
	LPC	Yes							
Serial Bus	SMBus	Yes							
	I2C Bus	Yes							
Ethernet	Gigabit	Default 2.5G; 1G by BIOS item option							
I/O	SATA3.0	2 Port (6 Gbps)							
	USB3.2 (Gen2)	2 Ports (10 Gbps); 2 Optional Ports by PCIe co-lay							
	USB2.0	8 Ports (480 Mbps)							
	SPI Bus	Yes. For BIOS EEPROM							
	GPIO	8-bit							
	Watchdog	65536 level, 0 ~ 65535 sec							
	COM Port	2 Ports (2-Wire)							
	TPM	TPM2.0							
	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 ~ 5.25V; RTC Battery: 2.0V ~ 3.3V							
	Power Consumption (Max.)	TBD							
	Power Consumption (Idle)	TBD							
Environment	Operating Temperature	Standard: 0 ~ 60 °C (32 ~ 140 °F) Extend: -40 ~ 85 °C (-40 ~ 185 °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	95 mm x 95 mm (3.74" x 3.74")							

研伟科技 15323776600

All product specifications are subject to change without notice.

Block Diagram



Ordering Information

Part No.	CPU	Core	Graphics	Base Freq.	Max. Boost Freq.	GFX HFM	GFX Burst Mode	CPU TDP	EMMC	IBECC	Thermal solution	Operating Temp.
SOM-6832P4-U0A1	Pentium J6426	4	32EU	2.0 GHz	3.0 GHz	400 MHz	850 MHz	10W	No	No	Passive	0 ~ 60 °C
SOM-6832P4-S3A1	Pentium N6415	4	16EU	1.2 GHz	3.0 GHz	350 MHz	800 MHz	6.5W	No	No	Passive	0 ~ 60 °C
SOM-6832A2-S3A1	Atom x6211E	2	16EU	1.3 GHz	3.0 GHz	350 MHz	750 MHz	6W	No	Yes	Passive	0 ~ 60 °C
SOM-6832A4-S5A1	Atom x6413E	4	16EU	1.5 GHz	3.0 GHz	500 MHz	750 MHz	9W	No	Yes	Passive	0 ~ 60 °C
SOM-6832A4-U0A1	Atom x6425E	4	16EU	2.0 GHz	3.0 GHz	500 MHz	750 MHz	12W	32GB	Yes	Passive	0 ~ 60 °C
SOM-6832A4-S4A1	Atom x6414RE	4	16EU	1.5 GHz	N/A	400 MHz	N/A	9W	No	Yes	Passive	0 ~ 60 °C
SOM-6832A4-S9A1	Atom x6425RE	4	32EU	1.9 GHz	N/A	400 MHz	N/A	12W	No	Yes	Passive	0 ~ 60 °C
SOM-6832A2-S0A1	Atom x6200FE	2	N/A	1.0 GHz	N/A	N/A	N/A	4.5W	No	Yes	Passive	0 ~ 60 °C
SOM-6832A2X-S3A1	Atom x6211E	2	16EU	1.3 GHz	3.0 GHz	350 MHz	750 MHz	6W	No	Yes	Active	-40 ~ 85 °C
SOM-6832A4X-S5A1	Atom x6413E	4	16EU	1.5 GHz	3.0 GHz	500 MHz	750 MHz	9W	No	Yes	Active	-40 ~ 85 °C
SOM-6832A4X-U0A1	Atom x6425E	4	16EU	2.0 GHz	3.0 GHz	500 MHz	750 MHz	12W	32GB	Yes	Active	-40 ~ 85 °C
SOM-6832A4X-S4A1	Atom x6414RE	4	16EU	1.5 GHz	N/A	400 MHz	N/A	9W	No	Yes	Active	-40 ~ 85 °C
SOM-6832A4X-S9A1	Atom x6425RE	4	32EU	1.9 GHz	N/A	400 MHz	N/A	12W	No	Yes	Active	-40 ~ 85 °C
SOM-6832A2X-S0A1	Atom x6200FE	2	N/A	1.0 GHz	N/A	N/A	N/A	4.5W	No	Yes	Active	-40 ~ 85 °C

Any other SKUs 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 Rev. A2
SOM-DB5830X-00A2	COMe R3.0 Devel. Board Type6 A2 Phoenix
SOM-DB5830A-00A2	COMe R3.0 Devel. Board Rev. A2 eDP version

Optional Accessories

Part No.	Description
TBD	Semi-Heatsink
TBD	Semi-cooler

Packing List

Part No.	Description	Quantity
-	SOM-6832 COM module	1
TBD	Heatspreader	1

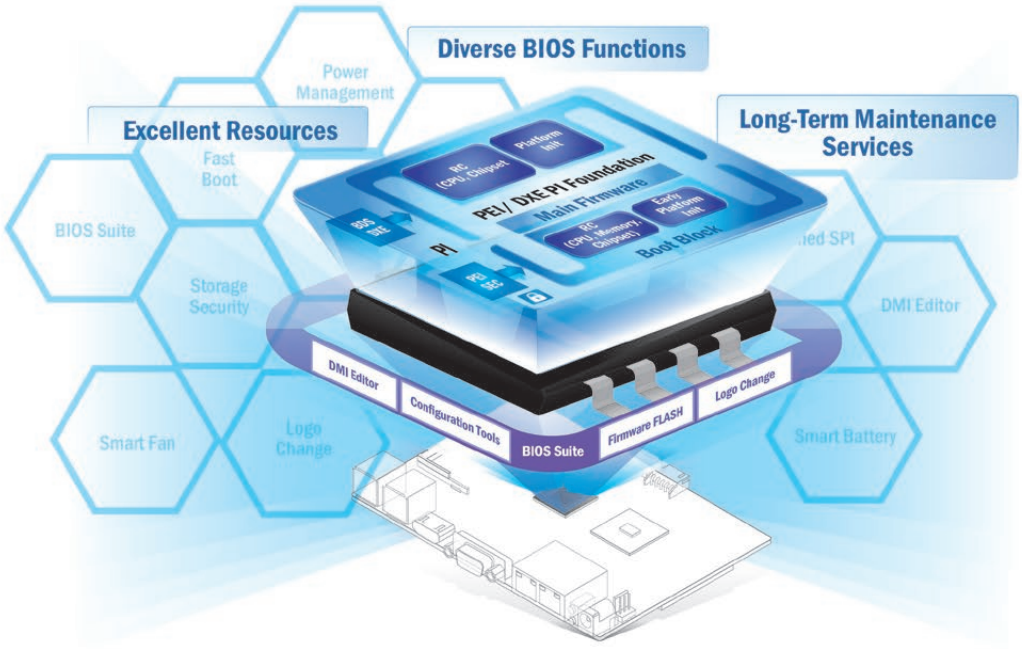
Embedded OS

OS	Part No.	Description
Win10	TBD	TBD

Reliable Embedded BIOS Solutions

Custom BIOS services with long-term support

Advantech's high-quality embedded BIOS solutions deliver rapid execution and feature expert BIOS team support. These solutions feature multi-functional designs that ensure security and enable power/boot management. Advantech further provides 10+ years of BIOS version management, internal management, and longevity support for both hardware and BIOS — enhancing application efficiency, diversifying functionality, and optimizing performance.



Embedded BIOS Solution Advantages

Sufficient Sources

- Strong partnership with BIOS vendors
- 50+ engineers with extensive industrial BIOS experience

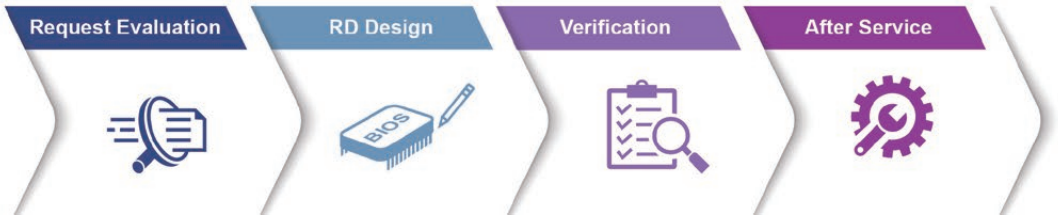
Diverse BIOS Functions

- Multi-layer security
- 3 second fast boot
- Power management
- BIOS suite utility

Long-Term Maintenance Services

- Platform longevity support
- 10-year BIOS version control
- BIOS remote backup

Value-Added Customization Process



WISE-DeviceOn

Massive IoT Device Management Utility

IoT deployment and management typically involves numerous disparate devices installed on multiple sites. These devices require effective monitoring, managing, and tracking. Advantech's easy-to-use WISE-DeviceOn interface enables users to remotely monitor device health, troubleshoot problems, and send software/firmware updates over-the-air (OTA). In sum, DeviceOn empowers quick real-time responsiveness to emerging problems.

Features

Comprehensive Management	Remote Access	Efficient Operations
• Devices status • Peripherals/firmware • Open for extension	• Real-time monitoring • Remote controls • Troubleshooting	• Zero-touch on-boarding • OTA updates • Batch control

Product Highlights

SOM-6883
High-performance 11th Gen Intel® COMe Type 6 Module

MIO-5375
Compact 11th Gen Intel® Outdoor Focused 3.5" SBC

EPC-B5587
10th Gen Intel® Xeon® based Edge server

EPC-R3220
Arm based IoT Edge Gateway

Edge AI Suite

AI development for diverse application at the Edge

Increasing demand for AI inference/analytic capabilities at the Edge make AI training models, software development environments, and hardware configuration key factors in successful solution deployment. Advantech's Edge AI Suite helps users build AI demo devices quickly and choose optimal hardware solutions easily.

5x Performance Boost	All-in-one Installation	One Click AI Experience	Plug-and-play Environment	Discover Cost-effective Hardware
• Integrated Intel® OpenVINO™ technology • Boost AI using Advantech hardware	• Build AI environment in under 5 minutes • Ready-to-use configuration	• User friendly configuration guidance • One-click Benchmark acquisition	• Easy access to 100+ AI inference extensions • Software development package available	• Diverse CPU/RAM options • Find hardware solutions for AI development

Embedded Linux Support and Design-in Services

Hardware Certified Ubuntu and Yocto with Eco Partner Services

Linux is the most popular embedded OS for transportation, outdoor services, factory automation, and mission critical applications. Its open source and kernel reliability features ease security updates, and make it particularly adaptable to new AI and Edge computing technology. Advantech has cooperated with Canonical and other software partners to provide hardware certified Ubuntu image and Yocto BSP as Linux offerings. The Advantech, Embedded Linux, and Android Alliance (ELAA) delivers local software services and consultation.

Features

Certified OS and BSP

- Platform compatibility tests
- Preloaded functional driver and software stacks

Licensed Services

- License authorized Canonical delivers 10-years of bug fixes and security updates
- In-house bundled service

Numerous AI and Edge Resources

- Containerized technology for service provision and deployment
- AI resources from Caffe, TensorFlow, and mxnet

Local Partner Alliance

- Embedded Linux and Android Alliance (ELAA)