

SOM-6832

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

NEW



Features

- COM Express® R3.0 Compact Module Type 6 Pinout
- Intel® Pentium®/Celeron® and Atom® x6000 Series (Elkhart Lake) Processors
- Dual Channel up to 16GB DDR4-3200 and IB ECC Supported by Specific SKUs
- Supports up to 3 simultaneous display: LVDS/eDP, HDMI/DisplayPort
- Supports onboard eMMC Storage (Optional) and 2.5GbE
- Supports iManager, WISE-DeviceOn, and Embedded Software APIs

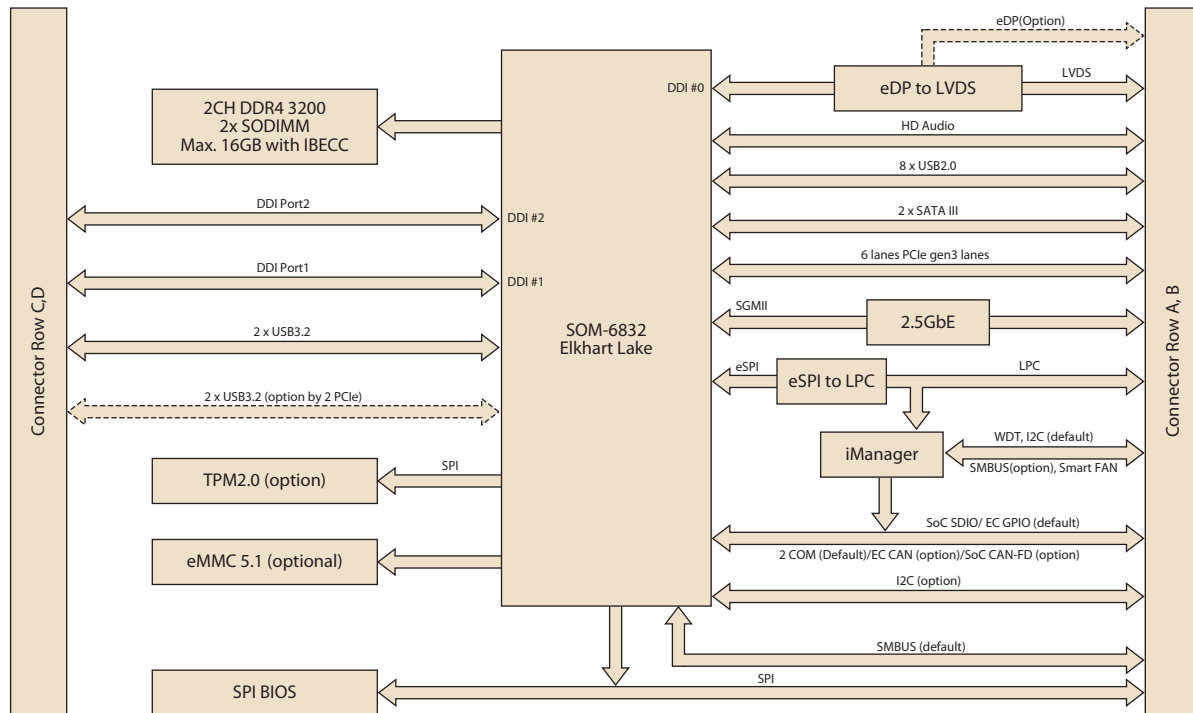
Software APIs:



Specifications

Form Factor	Form Factor	COM Express Compact			
	Pin-out Type	COM Express R3.0 Type 6 compatible			
Processor System	CPU	Pentium® J6426	Atom® x6425E	Atom® x6413E	Atom® x6425RE
	Base Frequency	2.0 GHz	2.0 GHz	1.5 GHz	1.9 GHz
	Max Single Core Turbo Frequency	3.0 GHz	3.0 GHz	3.0 GHz	N/A
	Cores	4	4	4	4
	LLC	1.5 MB	1.5 MB	1.5 MB	1.5 MB
	CPU TDP	10W	12W	9W	12W
	IB ECC	N/A	Yes	Yes	Yes
Memory	BIOS	AMI UEFI 256Mbit			
	Technology	DDR4			
	Speed	3200 MT/s			
	Max. Capacity	Up to 16GB			
	Socket	2 x 260P SODIMM (Dual Channel)			
Graphics	ECC Support	IB ECC supported by Specific CPU SKUs			
	Controller	Intel® UHD Graphics			
	Base. Frequency	400 MHz	500 MHz	500 MHz	400 MHz
	Max. Frequency	850 MHz	750 MHz	750 MHz	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	1 Port Maxlinear GPY215, Default 1G; 2.5G 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 (option)			
	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				
Environment	Type	ATX: Vin, VSB; AT: Vin			
	Supply Voltage	Vin: 8.5V ~ 20V; VSB: 4.75V ~ 5.25V; RTC Battery: 2.0V ~ 3.3V			
	Operating Temperature	Standard: 0 ~ 60 °C (32 ~ 140 °F) Extend: -40 ~ 85 °C (-40 ~ 185 °F)			
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)			
Mechanical	Humidity	Operating: 40 °C @ 95% relative humidity, non-condensing Storage: 60 °C @95%relative humidity, non-condensing			
	Vibration Resistance	3.5 Grms			
	Dimensions	95 mm x 95 mm (3.74" x 3.74")			

Block Diagram



Ordering Information

Part No.	CPU	Core	Graphics	Base Freq.	Max. Boost Freq.	GFX HFM	GFX Burst Mode	CPU TDP	EMMC (Optional)	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-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-S9A1	Atom x6425RE	4	32EU	1.9 GHz	N/A	400 MHz	N/A	12W	No	Yes	Passive	0 ~ 60 °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-6832A4X-U0A1	Atom x6425E	4	16EU	2.0 GHz	3.0 GHz	500 MHz	750 MHz	12W	32GB	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
1960048815N001	Semi-Heatsink

Embedded OS

OS	Part No.	Description
Win10 (HL)	20706WX9HS0155	Img W10 19HL SOM-6832 64b 1809 ENU
Win10 (VL)	20706WX9VS0159	Img W10 19VL SOM-6832 64b 1809 ENU
Win10 (EL)	20706WX9ES0170	Img W10 19EL SOM-6832 64b 1809 ENU

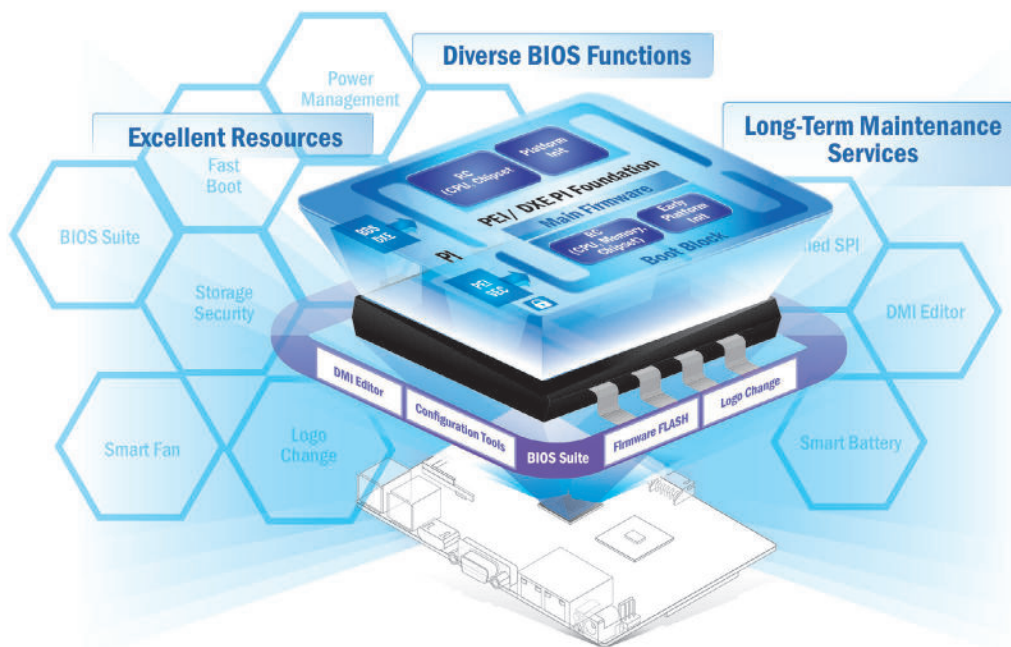
Packing List

Part No.	Description	Quantity
-	SOM-6832 COM module	1
1970005489T001	Atom CPU heatspreader	1
1970005489T011	Celeron & Pentium CPU heatspreader	1

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

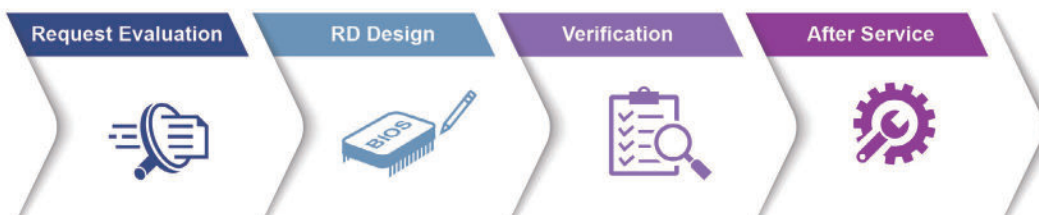
Diverse BIOS Functions

- 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

- Devices status
- Peripherals/firmware
- Open for extension

Remote Access

- Real-time monitoring
- Remote controls
- Troubleshooting

Efficient Operations

- 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	Licensed Services	Numerous AI and Edge Resources	Local Partner Alliance
- Platform compatibility tests - Preloaded functional driver and software stacks	- License authorized Canonical delivers 10-years of bug fixes and security updates - In-house bundled service	- Containerized technology for service provision and deployment - AI resources from Caffe, TensorFlow, and mxnet	Embedded Linux and Android Alliance (ELAA)