

# KINO-EHL

Mini-ITX SBC supports Intel® quad-core Celeron® J6412 2.0GHz on-board SoC

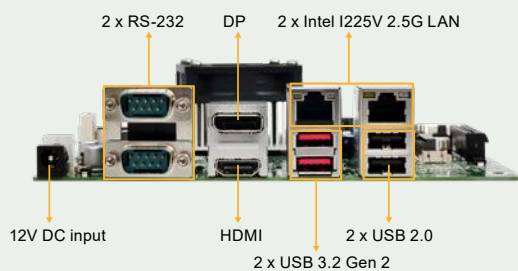
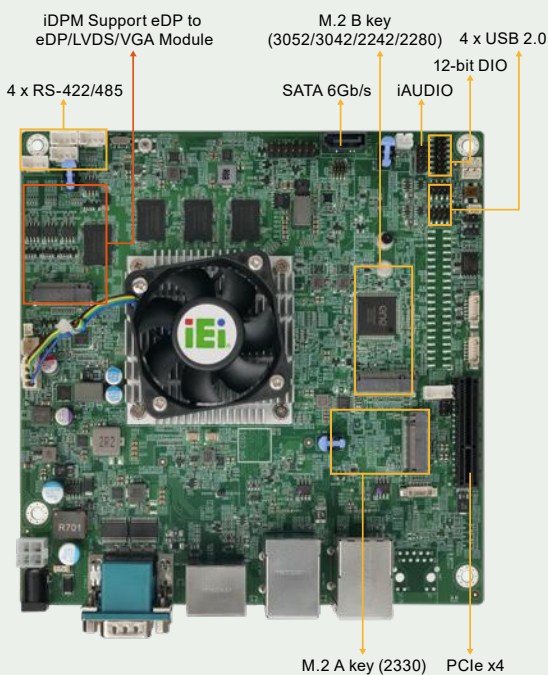
- On-board LPDDR4x 8GB (up to 16 GB option)
- Support Triple independent displays via HDMI,DP, iDPM
- Dual Intel® i225V 2.5GbE ports
- One PCIe Gen3 x4 slot,M.2 A key and M.2 B key expansions
- Two USB 3.2 Gen2,six USB 2.0,two RS-232,four RS-422/485



[www.ieiworld.com](http://www.ieiworld.com)

# KINO-EHL

Mini-ITX SBC supports Intel® quad-core Celeron® J6412 2.0GHz on-board SoC with 8GB LPDDR4x memory on board default, Triple Independent Display, HDMI, DP, SATA 6Gb/s, Dual 2.5 GbE, USB 3.2, M.2 and RoHS



## 10W Low-power Intel® Elkhart Lake Celeron® J6412 CPU

Intel® 10nm Celeron® J6412 On-board SoC, 4 cores and 4 threads, base frequency 2.00GHz, turbo frequency up to 2.60GHz, 1.5MB cache



## Supporting Intel® I225V 2.5GbE Controllers

Two RJ45 network interfaces are supported via Intel® I225V 2.5GbE controllers, achieving up to 2.5GbE network transmission rate.



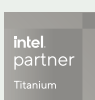
## Rich Expansion I/O

Support one M.2 A key for Wi-Fi & Bluetooth modules, one M.2 B key 3052 for 5G modules and one open-ended PCIe Gen3 x4 slot.

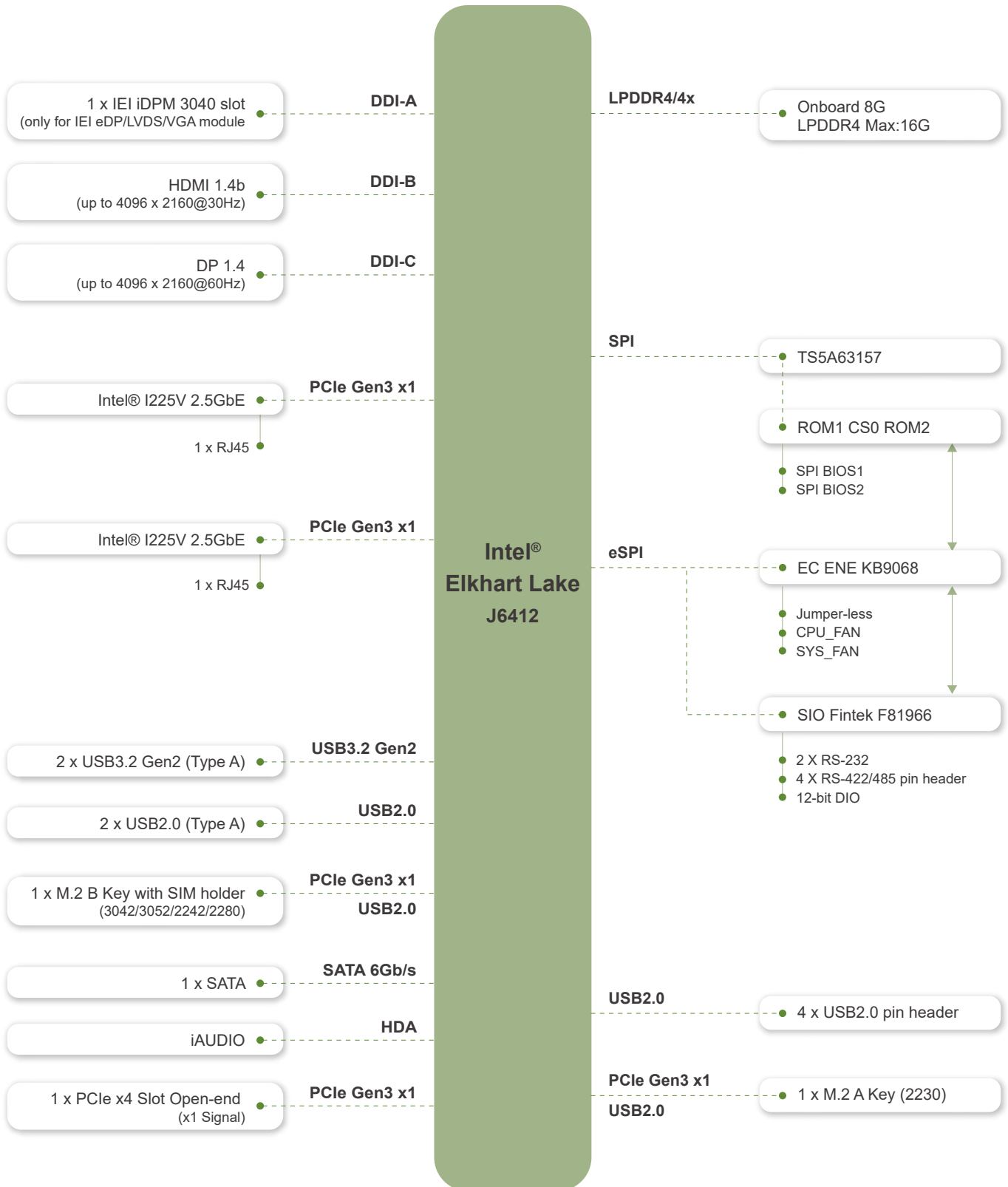


## IEI-specific iDPM Interface

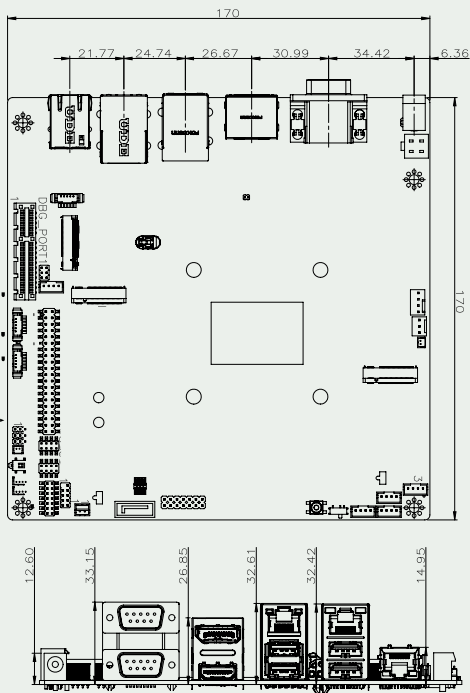
IEI uniquely designs a iDPM interface that can connect to display modules, enabling users to add LVDS/eDP/VGA display interface upon requirements.



# Block Diagram



### Dimensions



### Optional accessories



### Specifications

Model	KINO-EHL
CPU	Intel® Elkhart Lake Processor Intel® Celeron® J6412 on-board SoC (up to 2.6GHz, quad-core, 1.5M Cache, TDP=10W)
BIOS	AMI UEFI BIOS Dual BIOS for boot & recovery
Memory	Onboard LPDDR4x-3200MHz 8GB, system up to 16GB
Graphics Engine	Gen11LP Gfx firmware and driver, Media SDK, OpenCL* 1.2, OpenGL 4.5, OpenGL-ES 3.2, Vulkan v1.1, DirectX
Display Output	Triple Independent Display 1 x HDMI 1.4 (up to 4096 x 2160@30Hz) 1 x DP 1.4 (up to 4096 x 2160 @60Hz) 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller
External I/O	2 x USB 3.2 Gen 2 (10Gb/s) (USB Type A) 2 x USB 2.0 (USB Type A) 2 x RS-232
Internal I/O	1 x SATA 6Gb/s 4 x USB 2.0 (2x4 pin, P=2.0) 4 X RS-422/485 (1x4 pin, P=2.0)
SMBus	1 x SMBus (1x4 pin)
I <sup>2</sup> C	1 x I2C (1x4 pin)
Audio	1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2x5 pin, P=2.0)
Front Panel	1 x Front Panel (2x7 pin, power LED, HDD LED, power button, reset button)
Expansion	1 x PCIe x4 slot, open-ended (PCIe Gen3 x1 signal) 1 x M.2 A key (2230) (PCIe x 1 & USB 2.0) 1 x M.2 B key (3052/3042/2242/2280) (PCIe x2 & USB 2.0) 1 x On-board SIM card socket (hinge type) for M.2 B key
Digital I/O	1 x 12-bit DIO (2x7 pin)
TPM	Intel® PTT(TPM 2.0)
Fan Connector	1 x CPU fan connector (1x4 pin) 1 x System fan connector (1x3 pin)
Power Supply	12V DC input 1 x Internal power connector (2x2 pin) 1 x External DC power jack (Ø5.5mm) ErP/EuP Compliant
Watchdog Timer	Software programmable, support 1~255 sec. system reset
Power Consumption	12V@2.78A (Intel® Celeron® J6412 2.0GHz with 8GB 3200MHz LPDDR4X memory and EUP enabled)
Operating Temperature	0°C ~ 60°C
Storage Temperature	-30°C ~ 70°C
Operating Humidity	5% ~95%, non-condensing
Dimension	170 mm x 170 mm
Weight	GW:900g / NW:400g
Certification	CE/FCC Compliant

### Packing List

1 x KINO-EHL single board computer with cooler module	1 x SATA cable (PN: 32801-000201-300-RS)
1 x I/O shielding (PN: 45014-0097C0-00-HF)	1 x QIG

### Ordering Information

KINO-EHL-J6412C-R10	Mini-ITX SBC supports Intel® quad-core Celeron® J6412 2.0GHz on-board SoC with 8GB LPDDR4x memory on board default, Triple Independent Display, HDMI, DP, SATA 6Gb/s, Dual 2.5 GbE, USB 3.2, M.2 and RoHS
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### Optional Accessories

CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.00
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
32205-002700-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
iDPM-eDP-R10	eDP to eDP converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS converter board (for IEI iDPM connector)
iDPM-VGA-R10	eDP to VGA Connector converter board (For IEI Display Module)
iDPM-VBO-R10	eDP to VBO DisplayPort converter board (for IEI iDPM connector)
iDPM-DP-R10	eDP to DP DisplayPort converter board (for IEI iDPM connector)