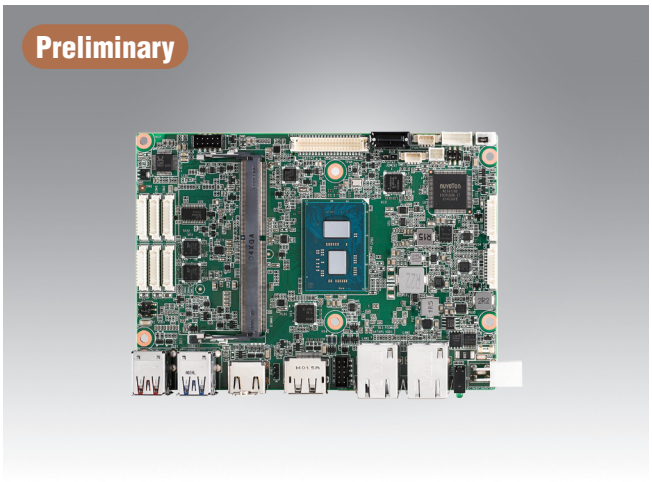
MIO-5152

Intel® Atom® x6000E series and Intel® Celeron® N and J series 3.5" SBC



Windows 10 WISE-DeviceOn iManager yocto PROJECT ubuntu CE FC

Features

- Atom® x6000E series and Intel® Celeron® J and N series with Quad/Dual Cores, TDP 6W/ 10W/ 12W
- Single Channel DDR4-3200 up to 32GB
- Support 3 independent displays via LVDS, DP1.4, and HDMI2.0 up to 4K@60Hz
- Dual GbE, 6 USB, 6 UART, TPM2.0
- CE/FCC Class B, Coastline I/O ESD 8KV/15KV Criteria A
- Support Windows 10 LTSC & Ubuntu 20.04 LTS, embedded software APIs, WISE-DeviceOn

Software APIs: GPIO, I²C, Watch Dog Timer, Backlight On/Off, Brightness, Hardware Monitor, System Throttling, Thermal Protection, Smart Fan, Data Security, System Info

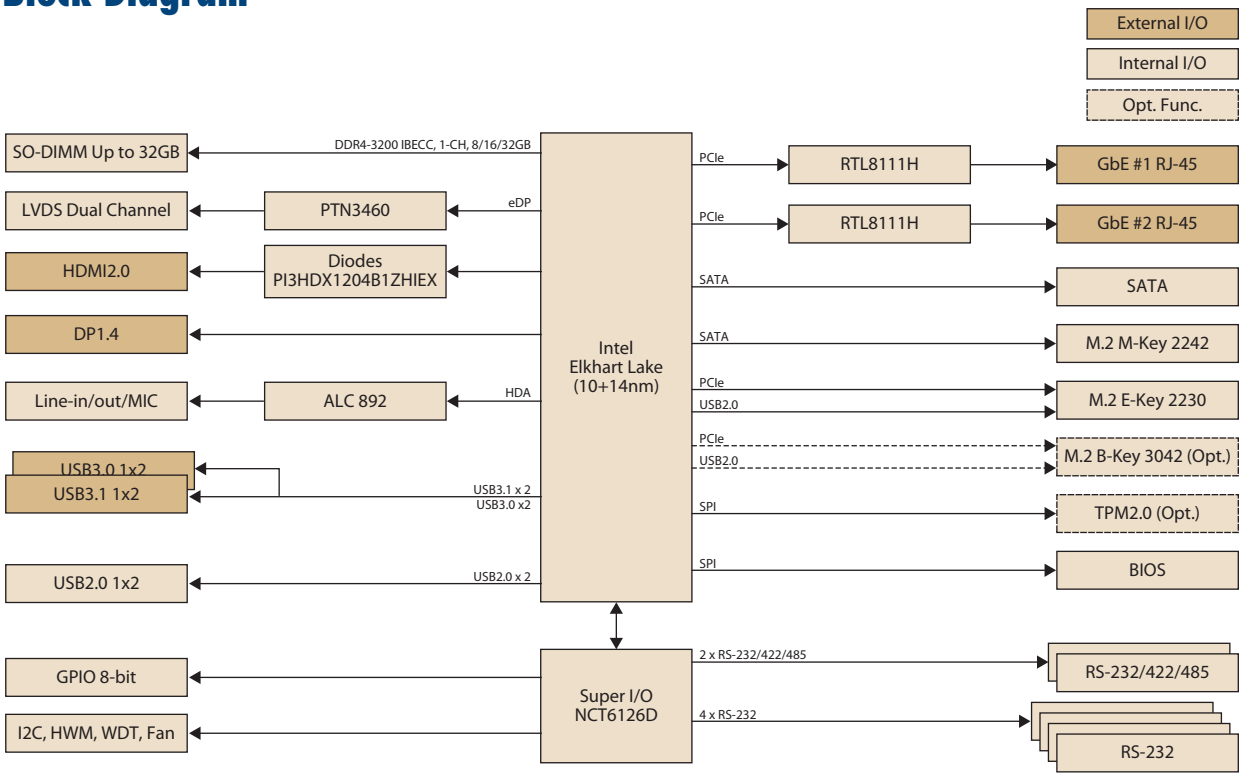
Specifications

Platform	Processor	Intel® Celeron® J6412	Intel® Celeron® N6210	Intel Atom® x6425E
	Max Frequency	2.6 GHz	2.6 GHz	3.0 GHz
	Base Frequency	2.0 GHz	1.2 GHz	2.0 GHz
	Core/Thread	4/4	2/2	4/4
	LLC	L2	L2	L2
	CPU TDP	10W	6.5W	12W
	Chipset	Intel® Chipset (SoC Integrated)		
	BIOS	AMI EFI 256Mbit		
Memory	Technology	DDR4-3200 SDRAM		
	Max Capacity	32GB		
	Channel/Socket	Single Channel/ 1 Socket		
	ECC Support	N/A	N/A	In-Band ECC Supported by SoC
Graphic	Controller	Intel Gen11 Graphics Engines (SoC integrated)		
	Max Frequency	800MHz	750MHz	750MHz
	Base Frequency	400MHz	250MHz	500MHz
	Graphic Memory	TBU		
	3D/HW Acceleration	DX12, OGL4.5, OCL1.2, Vulkan 1.1, MPEG2, H.264, JPEG/MJPEG, H.265 (HEVC)		
Display I/F	LCD	1 x LVDS: Dual Channel 18/24-bit, up to 1920 x 1200		
	HDMI/DP	1 x HDMI 2.0, up to 4096 x 2160 x 24bpp@60Hz 1 x DP1.4a, up to 4096 x 2160 x 36bpp@60Hz		
	Triple Display	3 simultaneous displays with LVDS, HDMI, DP		
External I/O	Ethernet	2 x RJ-45; LAN1: Realtek RTL8111H, LAN2: Realtek RTL8111H		
	HDMI/DP	1/1		
	USB3.0	4 x Type-A; 2 x USB3.1 Gen 2 (10Gbps), 2 x USB3.0 (5Gbps)		
	Power DC-Jack	Optional		
Internal I/O	SATA	1 x SATA GenIII 6.0 Gbps		
	USB	2 x USB2.0		
	Serial Bus	I2C		
	COM Ports	2 x RS-232/422/485, 4 x RS-232		
	GPIO	8-bit general purpose input output I/O		
	Audio	Realtek ALC888S, Line-in/Line-out/MIC		
	Inverter	12V/5V		
	SPI Bus	eSPI		
	Fan	4-wire smart fan		
	Front Panel Control	Power-on, Reset, Buzzer, SATA LED, CaseOpen		
Board Feature	Watchdog Timer	Programmable 1 ~ 255 sec/min		
	TPM	TPM2.0 (optional)		
Expansion	M.2 E-Key/B-Key	E-Key for wireless module (Type: 2230) optional B-Key for LTE module		
	M.2 M-Key	M-Key support SATA M.2 2242 module		
Power	Supply Voltage	Vin: DC 12V ± 10%; RTC Battery Lithium 3V/210mAH		
	Connector	ATX 2x2pin 90D, optional DC-Jack		
	Power Management	AT, ATX mode		
	Max Consumption	1.78 @12V (21.39Watt)		
	Idle Consumption	0.61 @12V (7.31Watt)		
Environment	Temperature	Operating Standard: 0 ~ 60 °C (32 ~ 140 °F)		
	Humidity	Operating: 40 @95% relative humidity, non-condensing		
	Vibration Resistance	TBD		
Certification	EMC	TBD		
Mechanical	Dimensions	146 x 102 mm (5.7" x 4")		
	Net weight			

All product specifications are subject to change without notice.

Last updated: 15-Apr-2021

Block Diagram



Ordering Information

Part Number	CPU	TDP	Max. Frequency	Core	GbE	USB3.1	USB3.0	USB2.0	RS232/ 422/485	RS232	TPM2.0	Thermal solution	Operating Temp
MIO-5152J-U6A1	Intel® Celeron® Processor J6412	10W	2.6 GHz	4	2	2	2	2	2	4	optional	Passive	0 ~ 60° C
MIO-5152N-U6A1	Intel® Celeron® Processor N6210	6.5W	2.6 GHz	2	2	2	2	2	2	4	optional	Passive	0 ~ 60° C
MIO-5152A-P0A1	Intel Atom® x6425E Processor	12W	3.0 GHz	4	2	2	2	2	2	4	optional	Passive	0 ~ 60° C

Packing List

Part No.	Description	Quantity
	MIO-5152 SBC	
	Startup Manual	
	MIO-5152 Passive Heatsink for Celeron series	1
	MIO-5152 Passive Heatsink for x6000E	1
	mini Jumper pack	1

Optional Accessories

Part No.	Description	Quantity
1700006291	M Cable SATA 7P/SATA 7P 30cm C=R 180/90	1
1700031583-01	M CABLE SATA 15P/1*2P-2.0 35cm	1
1700030406-01	M Cable 2*5P-2.0/USB-A 4P(F)*2 20cm	1
1700030404-01	F Cable D-SUB 9P(M)/1*10P-1.25 20cm	6
1700019584-01	A Cable 2*5P-2.0/Audio JACK*3 20cm	1

Rear IO View

Embedded OS/API

OS	Part No.	Description
Win10	TBD	64-bit (UEFI mode only)
Ubuntu 20.04 LTS	TBD	
Yocto BSP		
Software API	Download by website	