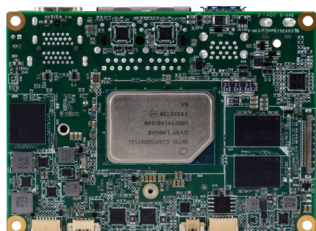
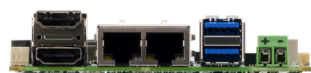
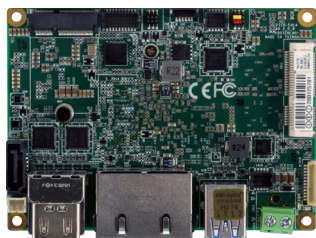


Pico-ITX Board with Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors



Specifications

System	
Form Factor	PICO-ITX
CPU	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors SoC
CPU Frequency	Up to 1.9GHz
Chipset	Intel® Elkhart Lake SoC Processor
Memory Type	LPDDR4x 4267 MHz on board memory, In-Band ECC (select SKUs)
Max. Memory Capacity	Up to 16 GB
BIOS	AMI UEFI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V AT/ATX (default)
Power Supply Type	Lockable & phoenix Terminal co-lay
Power Consumption (Typical)	TBD
System Cooling	Heat-spreader, heatsink & cooler optional
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	TBD
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	TBD
Certification	CE/FCC Class A
OS support	Windows 10 (64bit) Linux Ubuntu 21.04.1/Kernel 5.4

Features

- Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors SoC
- HDMI2.0b x 2 + LVDS/eDP1.3 x 1
- GbE x 2 or GbE x 1 (Optional)
- USB x 4 (2 x USB 3.2 GEN2)/rear IO + (2 x USB 2.0)/header
- LPDDR4x on board memory, In-Band ECC
- eMMC x 1/SATA x 1
- COM x 2 Full/CANBUS x 1/mini-PCIe x 1/M.2 E-Key 2230 x 1



Display	
Chipset	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors SoC
Resolution	HDMI2.0b x 2, 4K, 60Hz Single channel 12V/3.3V, 18-24 bit LVDS/ eDP 1.3 (Default: LVDS)
LCD Interface	18/24bit Single LVDS
I/O	
Storage/SSD	eMMC x 1 SATA x 1 SATA Power (5V) x 1
Ethernet	RTL8111G, 10/100/1000Base, RJ45 x 2 (Compatible with RJ45 x 1)
USB Port	2 x USB 3.2 GEN2/rear IO 2 x USB 2.0/header
Serial Port	RS-232/422/485 x 2
Audio	—
DIO	4-bit
Expansion Slot	M.2 2230 E key x 1 (For WIFI/BT, PCIe/USB signal only) mini-PCIe(Full) x 1 (Default mSATA or USB 2.0, PCIe[x1]x1 by BIOS) SMBUS/I2C + eSPI x 1 CANBUS x 1
SIM	—
TPM	—

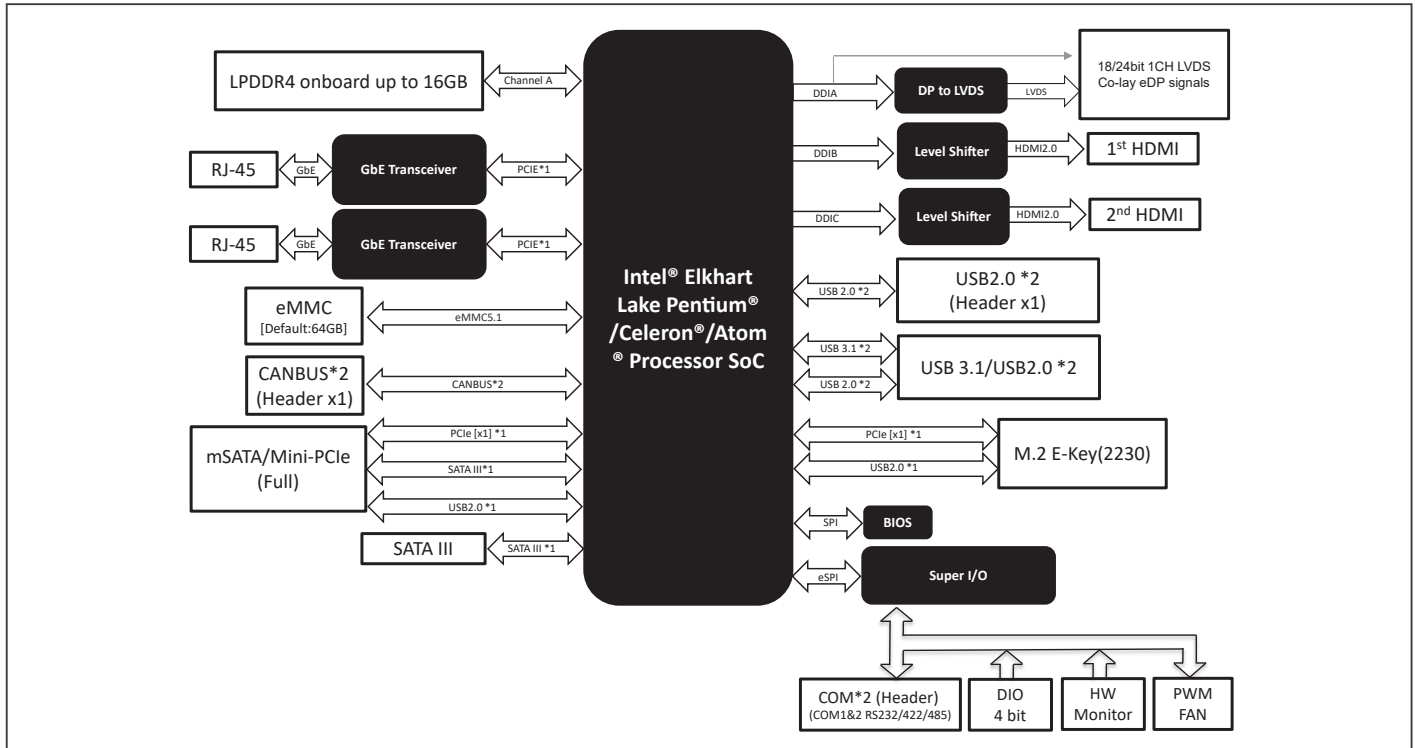
Packing List

- PICO-EHL4

Optional Accessories

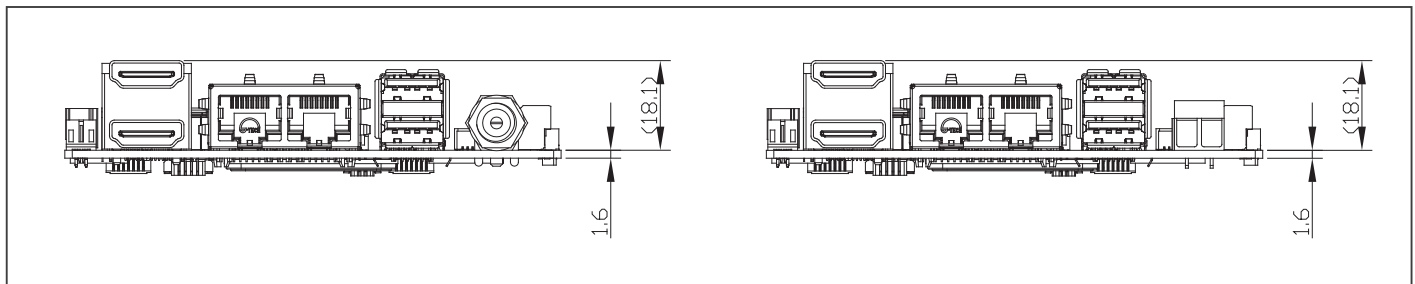
Part Number	Description	Qty.
TBD	COM cable	1
TBD	USB2.0 cable	1
TBD	eDP cable	1
TBD	LVDS signal cable	1
TBD	LVDS power cable	1

Block Diagram



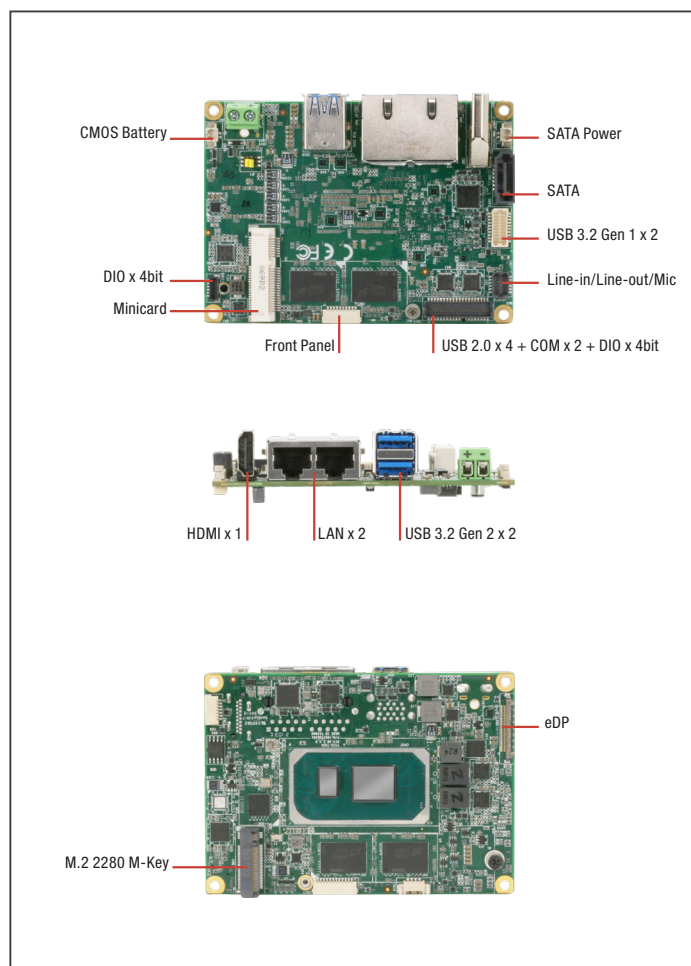
Dimension

Unit: mm



Ordering Information

Part Number	CPU	Memory	Display	Storage	LAN	USB	RS-232/422/485	Expansion Slot	Power	Power Temp	Others
PICO-EHL4-A10-0001(TBD)	Intel Celeron®	On board LPDDR4x 2G	HDMI x 2 LVDS x 1	SATAIII x 1 eMMC 32GB	GbE x 2	USB3.2 GEN2 + USB2.0 x 2/rear IO USB2.0 x 2/header	2	M.2 2230 E-key x 1 mSATA(Full-size) x 1	+12V (Terminal block)	0°C ~ 60°C	DIO 4bit SMBUS/I2C+ eSPI x 1 CANBUS x 1
PICO-EHL4-A10-0002(TBD)	Intel Atom®	On board LPDDR4x 2G	HDMI x 2 LVDS x 1	SATAIII x 1 eMMC 32GB	GbE x 2	USB3.2 GEN2 + USB2.0 x 2/rear IO USB2.0 x 2/header	2	M.2 2230 E-key x 1 mSATA(Full-size) x 1	+12V (Terminal block)	0°C ~ 60°C	DIO 4bit SMBUS/I2C+ eSPI x 1 CANBUS x 1
PICO-EHL4-A10-0003(TBD)	Intel Atom®	On board LPDDR4x 4G	HDMI x 2	SATAIII x 1 eMMC 32GB	GbE x 2	USB3.2 GEN2 + USB2.0 x 2/rear IO USB2.0 x 2/header	2	M.2 2230 E-key x 1 mSATA(Full-size) x 1	+12V (Terminal block)	0°C ~ 60°C	DIO 4bit SMBUS/I2C+ eSPI x 1 CANBUS x 1



Specifications

System	
Form Factor	PICO-ITX
CPU	Intel® 11th Generation Core™ i7/i5/i3/Celeron SoC i7-1185G7E (4C, 1.8GHz, up to 4.4GHz, TDP-up 28W) i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W) Celeron® 6305E (2C, 1.8GHz, TDP 15W) (i7-1185GRE/i5-1145GRE/i3-1115GRE by customer's request)
CPU Frequency	Up to 4.4GHz
Chipset	Intel® Tiger Lake-UP3 SoC Processor
Memory Type	LPDDR4x 3200 MHz on board memory, In-Band ECC (select SKUs)
Max. Memory Capacity	Up to 32GB
BIOS	AMI UEFI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V AT/ATX (default)
Power Supply Type	Lockable & phoenix Terminal co-lay
Power Consumption (Typical)	Intel® i7-1185G7E, LPDDR4x on board 32GB, 2.89A@ +12V
System Cooling	Heat-spreader and cooler optional
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.55 lb (0.25 Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	424,208
Certification	CE/FCC Class A
OS Support	Windows 10 (64bit) Linux Ubuntu 20.04.2/Kernel 5.8

Features

- 11th Gen Intel® Core™ i7/i5/i3/Celeron Processor SoC
- LPDDR4x on board memory, Max. 32 GB
- 2.5GbE Intel i225 + 1GbE Intel i219
- HDMI2.0b x 1, 4Kx2K + eDP, up to HBR3 8K
- M.2 2280 M key(PCIE by4 GEN4/SATA) x 1
- SATA 6.0 Gb/s x 1
- Full size mPCIe/mSATA x 1
- 2 x USB 3.2 Gen 2, 2 x USB 3.2 Gen 1, 4 x USB 2.0
- RS-232/422/485 x 2
- Line-in/Line-out/MIC
- DIO 8 bit



Display	
Chipset	11th Generation Intel® Core™ i7/i5/i3/Celeron SoC
Resolution	HDMI2.0b x 1, 4Kx2K 60Hz eDP x 1, up to HBR3, 8Kx4K 30Hz
LCD Interface	—
I/O	
Storage/SSD	SATA x 1 SATA Power (5V) x 1
Ethernet	Intel® i225, 10/100/1000/2500Base, RJ45 x1 Intel® i219, 10/100/1000Base, RJ45 x1
USB Port	2 x USB3.2 Gen 2/rear IO 2 x USB3.2 Gen 1/header 4 x USB2.0/header
Serial Port	RS-232/422/485 x 2
Audio	High Definition Audio Interface, Line-in/Line-out/MIC (optional)
DIO	8-bit
Expansion Slot	M.2 M key 2280 x 1 (PCIE GEN4 as default, SATA select by HW BOM) Full size mPCIe/mSATA or USB2.0 x 1 (PCle as default, SATA select by BIOS) SMBUS/I2C and eSPI x 1 (SMBUS as default, I2C select by HW BOM)
SIM	—
TPM	2.0

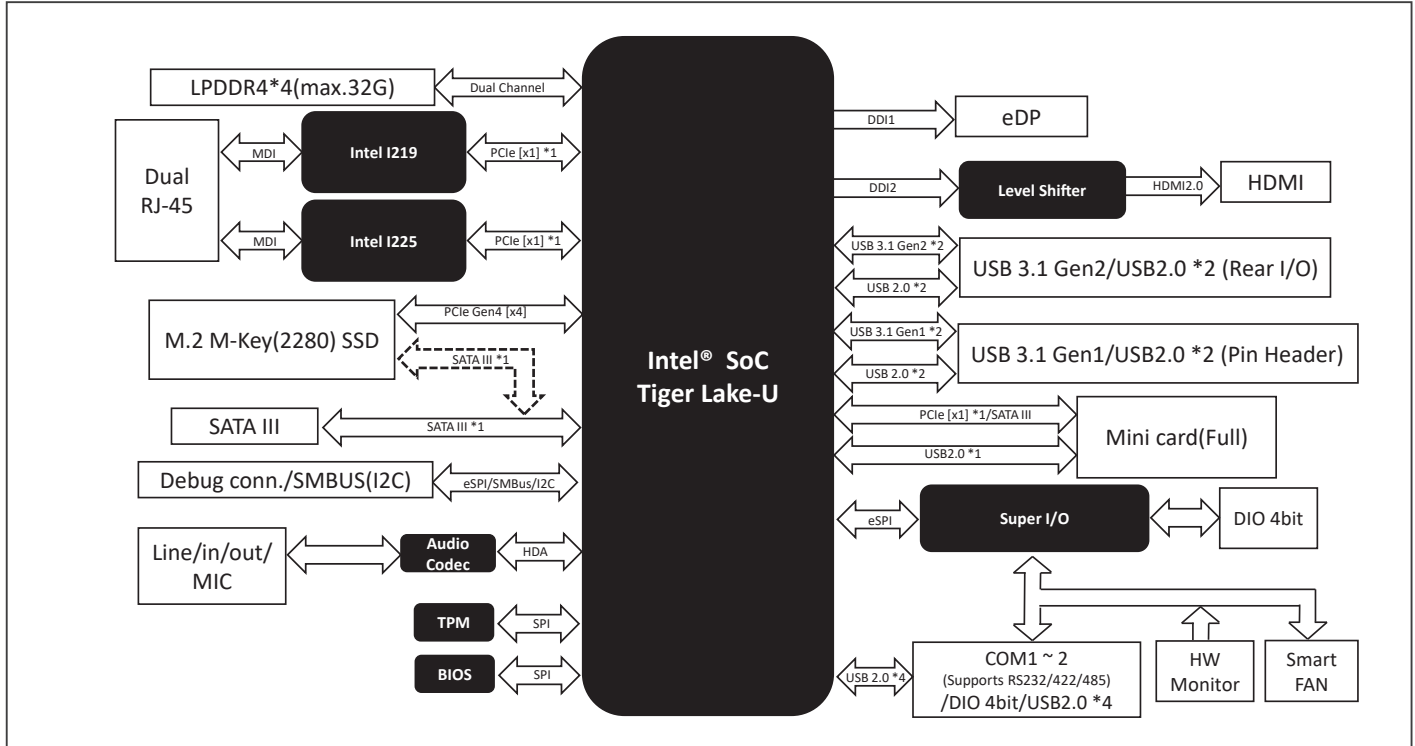
Packing List

- PICO-TGU4

Optional Accessories

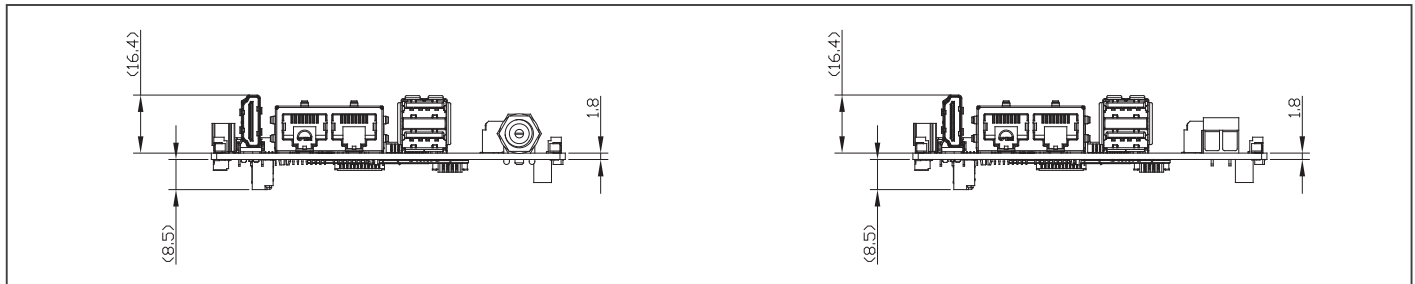
Part Number	Description	Qty.
170X000285	USB3.2 GEN 1 cable	1
170X000284	USB2.0 x 4 + COM x 2 +DIO 4bit x 1 cable	1
170X000287	Front panel cable	1
170X000156	250mm Audio cable	1
1709070500	(TF)SATA CABLE.7P Pitch 1.27mm.50cm	1
170X000322	SATA power cable	1
PICO-TGU4-FAN01	Integrated Cooler for PICO-TGU4, assemble with PICO-TGU4 directly	1
PICO-TGU4-HSP01	Integrated Heat spreader for PICO-TGU4, assemble with PICO-TGU4 directly	1

Block Diagram



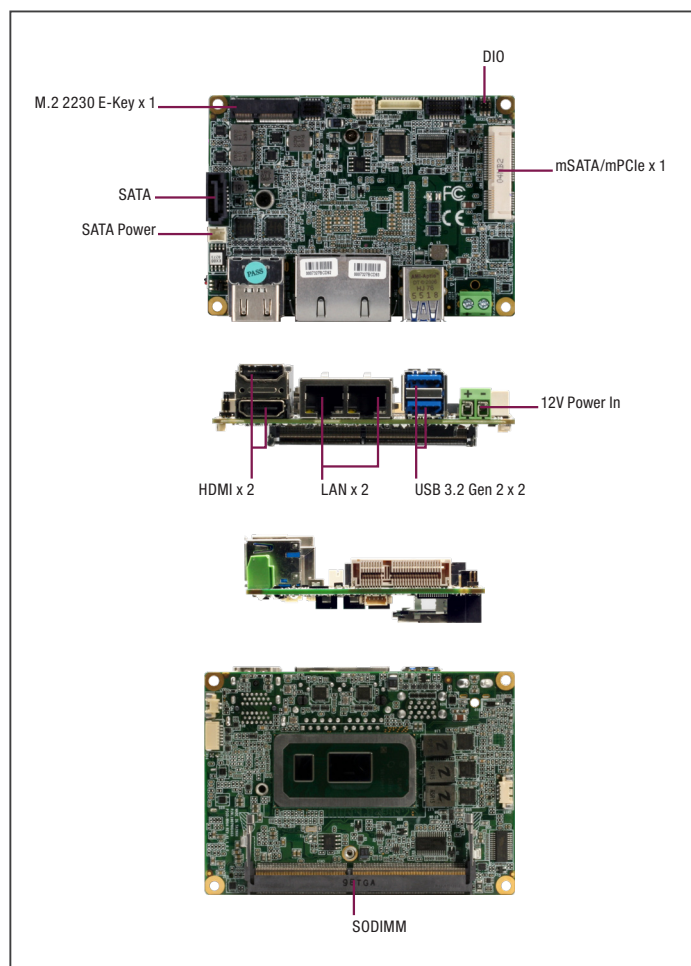
Dimension

Unit: mm



Ordering Information

Part Number	CPU	Memory	Display	Storage	LAN	USB	RS-232/ 422/485	Expansion Slot	Power	Power Temp	Audio	Others
PICO-TGU4-A10-0001	Celeron® 6305E	4G	HDMI x 1 eDP x 1	SATAIII x 1	2.5GbE x 1, Intel i225 GbE x 1, Intel i219	USB3.2 GEN2 x 2 (Rear) USB3.2 GEN1 x 2 (header) USB2.0 x4 (header)	2	M.2 2280 M-key x 1 mini-PCIe(Full) x 1	+12V (Terminal block)	0°C ~ 60°C	Line-in/Line-out/MIC (optional)	DIO, SMBUS/eSPI x 1 (I2C optional)
PICO-TGU4-A10-0002	i3-1115G4E	4G	HDMI x 1 eDP x 1	SATAIII x 1	2.5GbE x 1, Intel i225 GbE x 1, Intel i219	USB3.2 GEN2 x 2 (Rear) USB3.2 GEN1 x 2 (header) USB2.0 x4 (header)	2	M.2 2280 M-key x 1 mini-PCIe(Full) x 1	+12V (Terminal block)	0°C ~ 60°C	Line-in/Line-out/MIC (optional)	DIO, SMBUS/eSPI x 1 (I2C optional)
PICO-TGU4-A10-0003	i3-1115G4E	8G	HDMI x 1 eDP x 1	SATAIII x 1	2.5GbE x 1, Intel i225 GbE x 1, Intel i219	USB3.2 GEN2 x 2 (Rear) USB3.2 GEN1 x 2 (header) USB2.0 x4 (header)	2	M.2 2280 M-key x 1 mini-PCIe(Full) x 1	+12V (Terminal block)	0°C ~ 60°C	Line-in/Line-out/MIC (optional)	DIO, SMBUS/eSPI x 1 (I2C optional)
PICO-TGU4-A10-0004	i5-1145G7E	8G	HDMI x 1 eDP x 1	SATAIII x 1	2.5GbE x 1, Intel i225 GbE x 1, Intel i219	USB3.2 GEN2 x 2 (Rear) USB3.2 GEN1 x 2 (header) USB2.0 x4 (header)	2	M.2 2280 M-key x 1 mini-PCIe(Full) x 1	+12V (Terminal block)	0°C ~ 60°C	Line-in/Line-out/MIC (optional)	DIO, SMBUS/eSPI x 1 (I2C optional)
PICO-TGU4-A10-0005	i7-1185G7E	8G	HDMI x 1 eDP x 1	SATAIII x 1	2.5GbE x 1, Intel i225 GbE x 1, Intel i219	USB3.2 GEN2 x 2 (Rear) USB3.2 GEN1 x 2 (header) USB2.0 x4 (header)	2	M.2 2280 M-key x 1 mini-PCIe(Full) x 1	+12V (Terminal block)	0°C ~ 60°C	Line-in/Line-out/MIC (optional)	DIO, SMBUS/eSPI x 1 (I2C optional)
PICO-TGU4-A10-0006	i7-1185G7E	32G	HDMI x 1 eDP x 1	SATAIII x 1	2.5GbE x 1, Intel i225 GbE x 1, Intel i219	USB3.2 GEN2 x 2 (Rear) USB3.2 GEN1 x 2 (header) USB2.0 x4 (header)	2	M.2 2280 M-key x 1 mini-PCIe(Full) x 1	+12V (Terminal block)	0°C ~ 60°C	Line-in/Line-out/MIC (optional)	DIO, SMBUS/eSPI x 1 (I2C optional)



Specifications

System	
Form Factor	PICO-ITX
CPU	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) 4305UE (2C, 2GHz)
CPU Frequency	Up to 4.4GHz
Chipset	Intel® Whiskey-U SoC Processor
Memory Type	DDR4 2400MHz SODIMM x 1, Max. 32GB
Max. Memory Capacity	Up to 32GB
BIOS	UEFI only
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V AT/ATX (default)
Power Supply Type	Lockable & phoenix Terminal co-lay
Power Consumption (Typical)	TBD
System Cooling	Heat-spreader, cooler optional
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	TBD
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	TBD
Certification	CE, FCC
OS support	Windows 10 (64 bit) Ubuntu 18.04.3/Kernel 5.0

Features

- 8th Intel® Core™ i7/i5/i3/Celeron Processor SoC
- Non-ECC DDR4 SODIMM Slot x 1, up to 32GB
- Dual HDMI ports (HDMI 1.4b)
- GbE x 2, SATA 6.0 Gb/s x 1, GPIO x 4
- USB 3.2 Gen 2 x 2 (Rear), USB 2.0 x 2 Pin header, RS-232/422/485 x 2
- Full size mSATA/mPCIe x 1 (Select by BIOS), M.2 2230 (E key) x 1
- 12V Only (Terminal block and DC barrel co-design)



Display	
Chipset	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) 4305UE (2C, 2GHz)
Resolution	HDMI 1.4b up to 3840 x 2160 x 2
LCD Interface	—
I/O	
Storage/SSD	Full size mSATA/mPCIe or USB2.0 x 1 (PCIe as default, mSATA selected by BIOS) SATA 6.0Gb/s x 1, (5V Power)
Ethernet	Realtek 8111G*2 10/100/1000Mbps
USB Port	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header
Serial Port	RS-232/422/485 x 2
Audio	—
DIO	4-bit
Expansion Slot	M.2 2230 E key x 1 (For WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1
SIM	—
TPM	TPM2.0 (Optional via LPC cable)

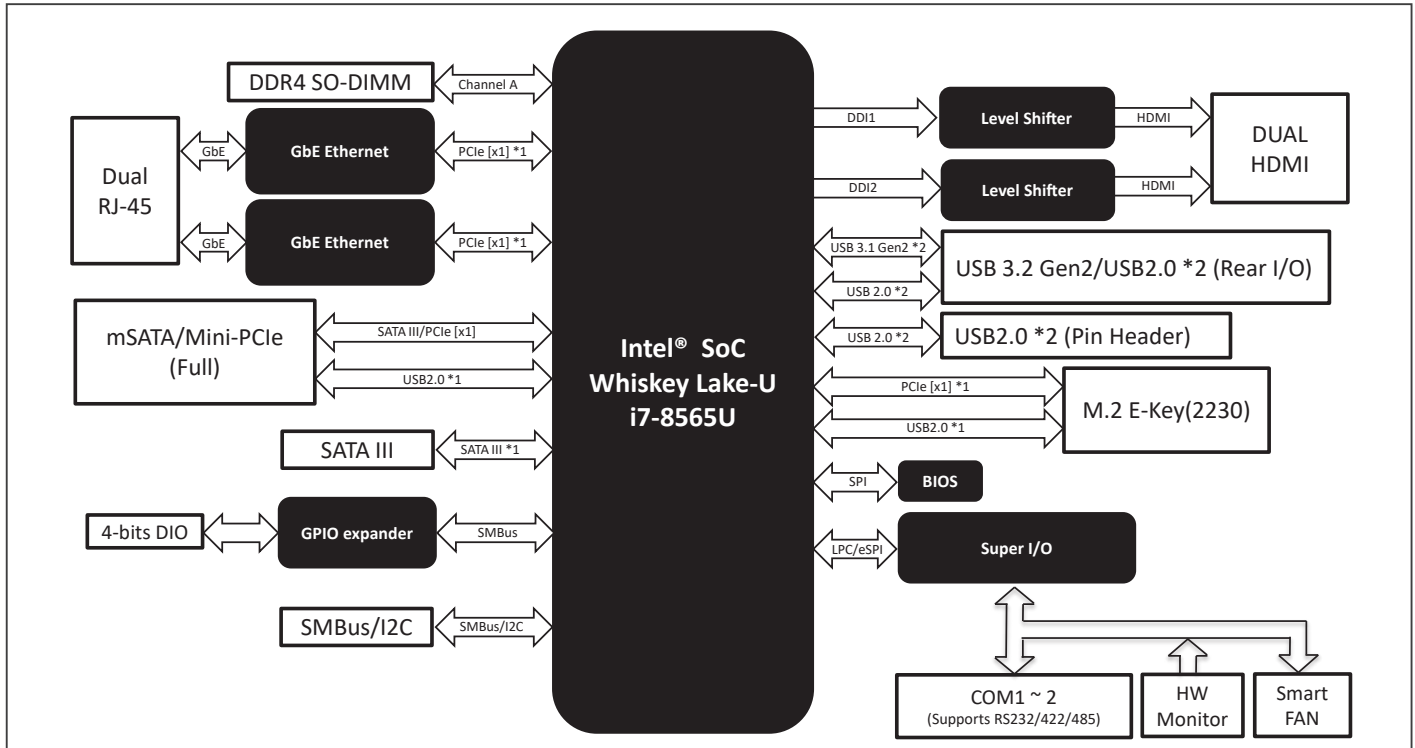
Packing List

- PICO-WHU4

Optional Accessories

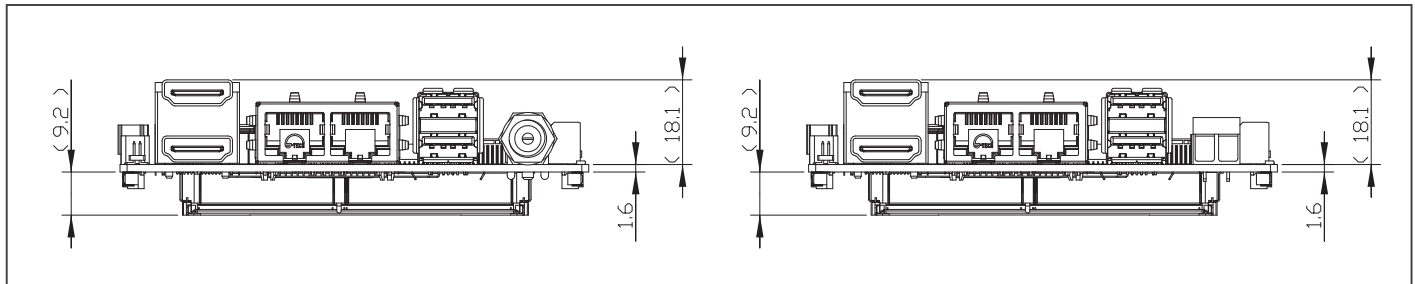
Part Number	Description	Qty.
1702150155	(TF)Power Cable.15P SATA(F).2P 2.0mm Housing(PH).15cm	1
1709070500	(TF)SATA CABLE.7P Pitch 1.27mm.50cm	1
1701200102	(TF)SERIAL Cable.WL1010H-2*10P 1.0mm Housing.Dual DB9(M).10cm	1
170010010D	USB cable (2 Port), 10cm	1
1702030176	(TF)Power Cable.3P DC jack.TERMINAL*2.17cm.TKS-G21-LN05	1
PICO-WHU4-FAN01	Integrated Cooler for PICO-WHU4, assemble with PICO-WHU4 directly	1
PICO-WHU4-HSP01	Heat Spreader for PICO-WHU4	1

Block Diagram



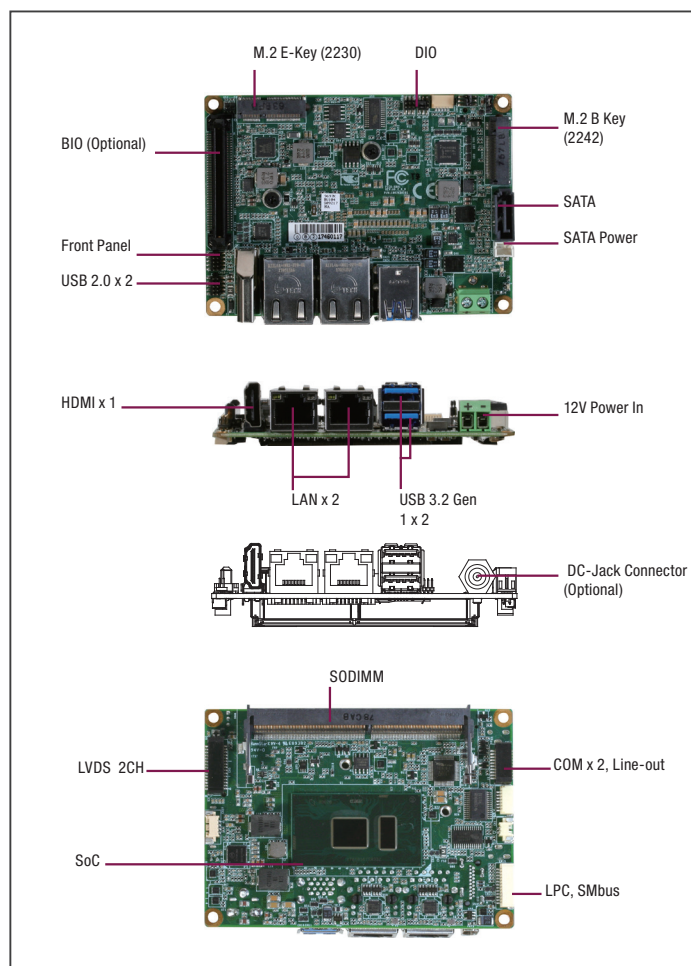
Dimension

Unit: mm



Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Power Temp	Others
PICO-WHU4-A11-0001	Celeron 4305UE	DDR4 Socket	Optional	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header	—	2	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	—
PICO-WHU4-A11-0002	i3-8145UE	DDR4 Socket	Optional	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header	—	2	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	—
PICO-WHU4-A11-DC02	i3-8145UE	DDR4 Socket	Optional	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header	—	2	M.2 2230 (E Key) x 1	+12V (DC Jack)	0°C ~ 60°C	—
PICO-WHU4-A11-0003	i5-8365UE	DDR4 Socket	Optional	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header	—	2	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	—
PICO-WHU4-A11-0004	i7-8665UE	DDR4 Socket	Optional	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header	—	2	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	—
PICO-WHU4W2-A11-0004	i7-8665UE	DDR4 Socket	Optional	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header	—	2	M.2 2230 (E Key) x 1	+12V (Terminal block)	-40°C ~ 85°C	—



Specifications

System	
Form Factor	Pico-ITX
CPU	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U (optional)
CPU Frequency	Up to 3.9/2.8 GHz
Chipset	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U (optional)
Memory Type	DDR4 1866/2133MHz SODIMM x 1, Max. 16 GB
Max. Memory Capacity	Up to 16 GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V AT/ATX (default)
Power Supply Type	AT/ATX (default)
Power Consumption (Typical)	i7-7600@DDR4 16GB, 12V@2.3A
System Cooling	Heat-spreader, heatsink & cooler (Smart FAN) optional
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.55 lb (0.25 Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	163,000
Certification	CE, FCC
OS support	Windows 10 (64 bit)

Features

- 7th Generation Intel® Core™ i7/i5/i3/Celeron® Processor SoC
- DDR4 SODIMM Slot x 1, up to 16 GB
- Dual Gigabit Ethernet Support
- HDMI 1.4b, LVDS 2CH Display
- USB 3.2 Gen 1 x 2, USB 2.0 x 2, SATA 6.0Gb/s x 1
- COM1: RS-232; COM2: RS-232/422/485
- M.2 B Key (2242) x 1, M.2 E Key (2230) x 1
- BIO (Optional)



Display	
Chipset	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U (Optional)
Resolution	LVDS (18/24-bit 2CH) 1920 x 1200 HDMI 1.4b up to 4096 x 2304 (4K) DDI (BIO)
LCD Interface	18/24-bit 2CH LVDS
I/O	
Storage/SSD	SATA 6.0 Gb/s x 1, M.2 B-key (2242)
Ethernet	Realtek 8111G Gigabit Ethernet 10/100/1000Base-TX, RJ-45 x 2
USB Port	USB 3.2 Gen 1 x 2 Rear I/O, USB 2.0 x 2 Pin header
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)
Audio	Line-out x1
DIO	4-bit (2-in, 2-out)
Expansion Slot	M.2 E-Key (2230), BIO (optional), Smbus x 1
SIM	—
TPM	—

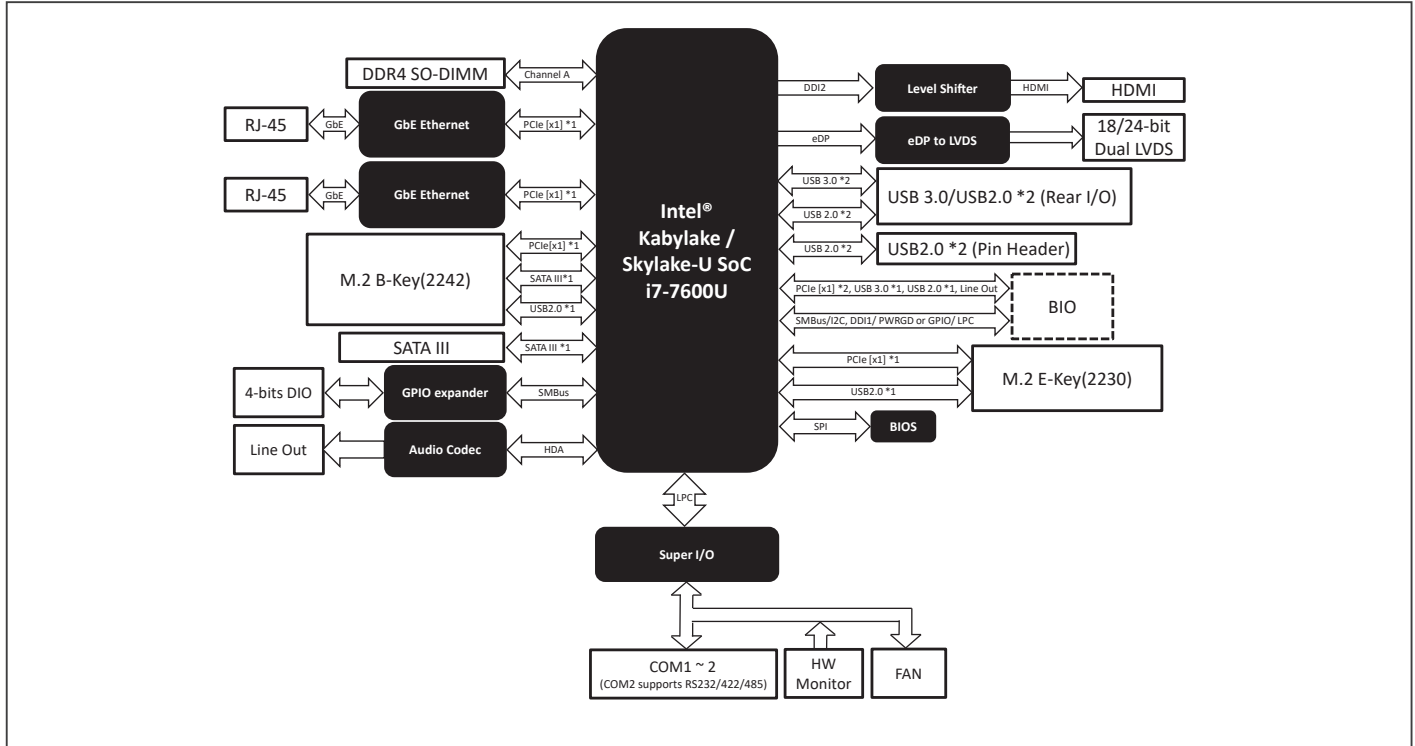
Packing List

- PICO-KBU4

Optional Accessories

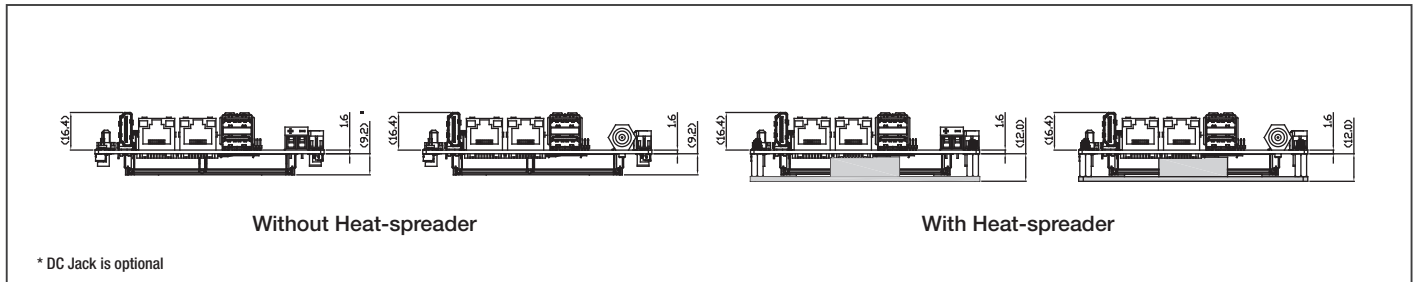
Part Number	Description	Qty.
1709070500	SATA CABLE. 7P Pitch. 27mm. 50cm	1
1702150155	SATA Power Cable, 15cm	1
170010010D	USB cable (2 Port), 10cm	1
1701200101	Cable for COM x 2 & line-out, 10 cm	1
PICO-KBU4-HSP01	Heat-spreader for PICO-KBU4	1
PICO-KBU4-FAN01	Integrated Cooler for PICO-KBU4, assemble with PICO-KBU4 directly.	1

Block Diagram



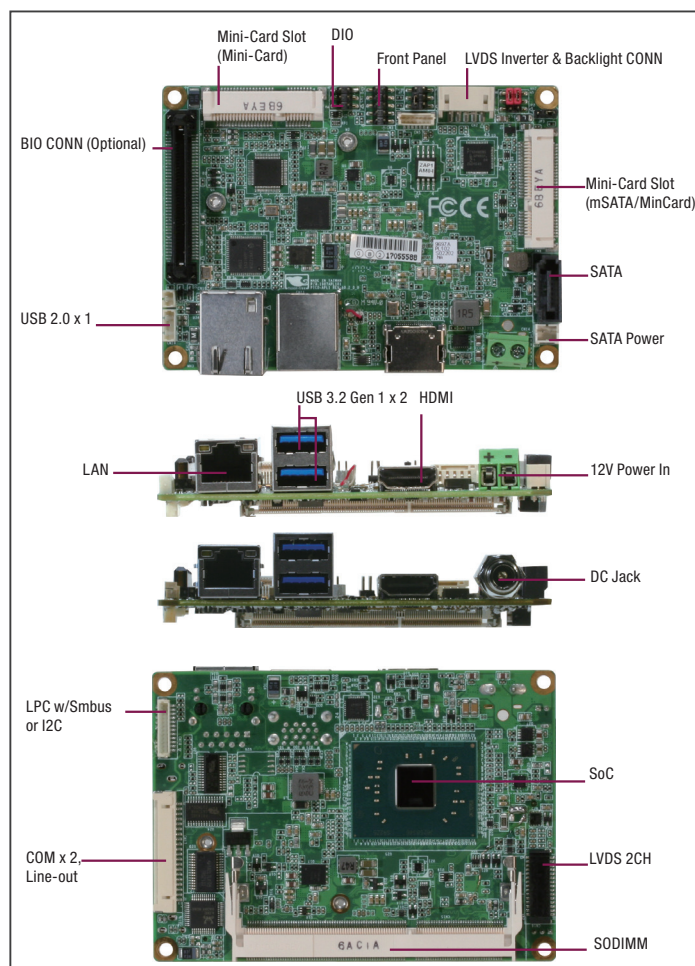
Dimension

Unit: mm



Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Power Temp	Others
PICO-KBU4-A10-0001	Celeron® 3965	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	DIO x 4 bit BIO (Optional)
PICO-KBU4-A10-0002	i3-7100U	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	DIO x 4 bit BIO (Optional)
PICO-KBU4-A10-0003	i5-7300U	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1 BIO x 1	+12V (Terminal block)	0°C ~ 60°C	DIO x 4 bit
PICO-KBU4-A10-0004	i7-7600U	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1 BIO x 1	+12V (Terminal block)	0°C ~ 60°C	DIO x 4 bit
PICO-KBU4-A10-0005 (6th Gen)	Celeron® 3955	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (Terminal block)	0°C ~ 60°C	DIO x 4 bit BIO (Optional)
PICO-KBU4-A10-DC06	i3-7100U	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (DC Jack)	0°C ~ 60°C	DIO x 4 bit BIO (Optional)
PICO-KBU4-A10-0007 (6th Gen)	i5-6300U	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1 BIO x 1	+12V (Terminal block)	0°C ~ 60°C	DIO x 4 bit
PICO-KBU4W1-A10-0004	i7-7600U	DDR4 Socket	optional	HDMI x 1 LVDS x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1 BIO x 1	+12V (Terminal block)	-20°C ~ 70°C	DIO x 4 bit



Specifications

System	
Form Factor	Pico-ITX
CPU	Intel® Atom™ E3900 series/ Pentium® N4200/ Celeron® N3350 Processor SoC
CPU Frequency	Up to 2.0GHz
Chipset	Intel® Atom™ E3900 series/ Pentium® N4200/ Celeron® N3350 Processor SoC
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1867MHz, Max. 8GB
Max. Memory Capacity	Up to 8GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V AT/ATX (default)
Power Supply Type	AT/ATX (default)
Power Consumption (Typical)	Intel® N3350 Processor, DDR3L 8GB 0.91A@+12V
System Cooling	Heat-spreader/ heatsink optional
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.55 lb (0.25 kg)
Operating Temperature	32 °F ~ 140 °F (0°C ~ 60°C),
Storage Temperature	-40 °F ~ 176 °F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	170,000
Certification	CE, FCC
OS support	Windows 10 (64 bit)
Display	
Chipset	Intel® Atom™ E3900/ Pentium® N4200/ Celeron® N3350 Processor SoC
Resolution	LVDS (18/24bit 2CH) 1920 x 1200 (optional) HDMI 1.4b up to 3840 x 2160 DDI (BIO)
LCD Interface	18/24bit 2CH LVDS

Features

- Intel® Atom™ E3900/ Pentium® N4200/ Celeron® N3350 Processor SoC
- DDR3L 1867 MHz SODIMM x 1, Up to 8 GB
- 18/24-bit Dual Channel LVDS LCD (Optional)
- Supports Triple Display (Optional)
- HDMI 1.4b Supports 3840 x 2160 (4K x 2K)
- SATA 6.0Gb/s x 1, mSATA (Full Size) x 1
- Intel® Gigabit Ethernet x 1, RJ-45 x1
- USB 3.2 Gen 1 x 2, USB 2.0 x 1
- RS-232 x 1, RS-232/422/485 x 1 (Optional by Cable)
- Mini-Card x 1 (Half-Size)
- Digital I/O 4-bit
- BIO Connector for Daughter Board (Optional)



I/O	
Storage/SSD	SATA 6.0Gb/s x 1, mSATA or Mini-PCIe by BOM (Full size) x 1
Ethernet	Intel® Gigabit Ethernet i210AT, 10/100/1000Base-TX, RJ-45 x 1
USB Port	USB 3.2 Gen 1 x 2, Rear IO, USB 2.0 x 1
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)
Audio	Line-out x1
DIO	4-bit (2-in, 2-out)
Expansion Slot	Mini Card (Half-size) x 1, BIO (optional) x 1, I2C or SMBus x 1
SIM	—
TPM	—

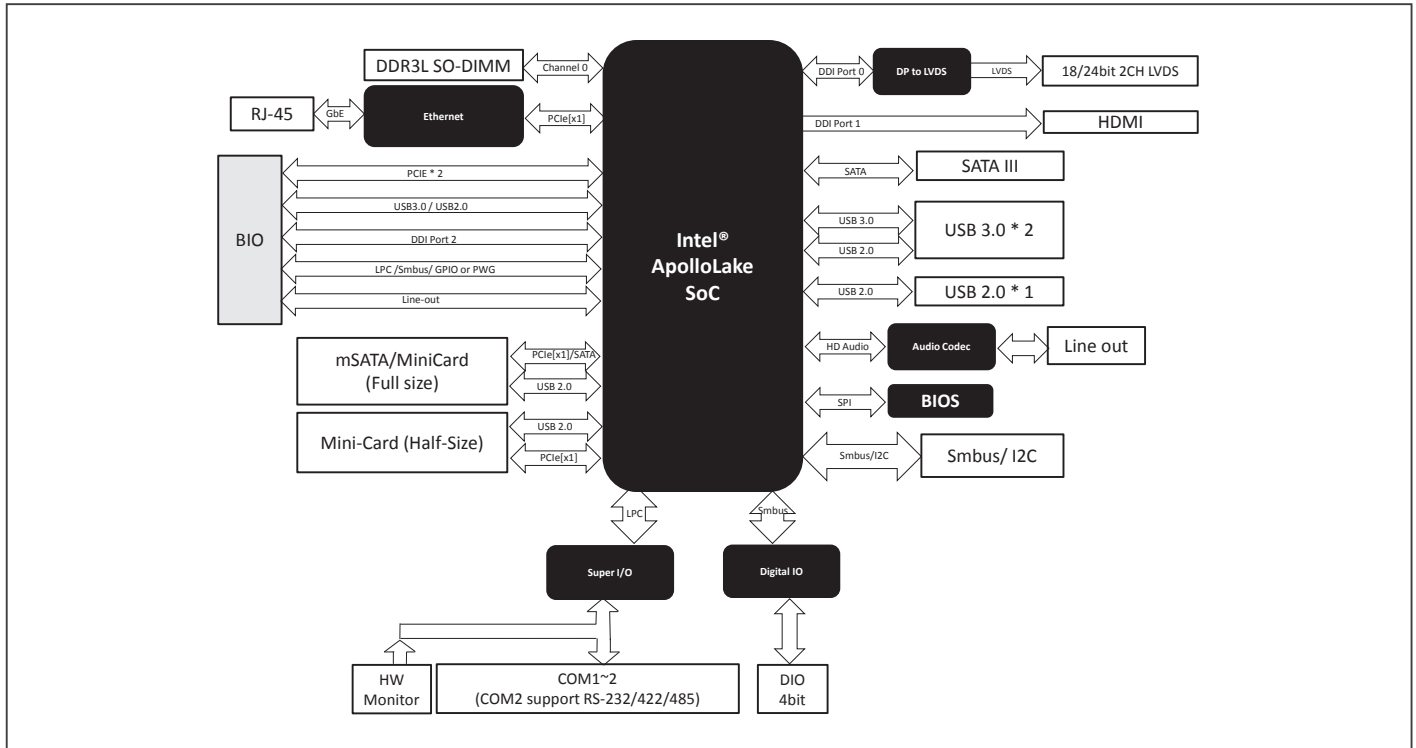
Packing List

- 1703200153 (Optional by model)
COM x 2, Line-out Cable
- PICO-APL1

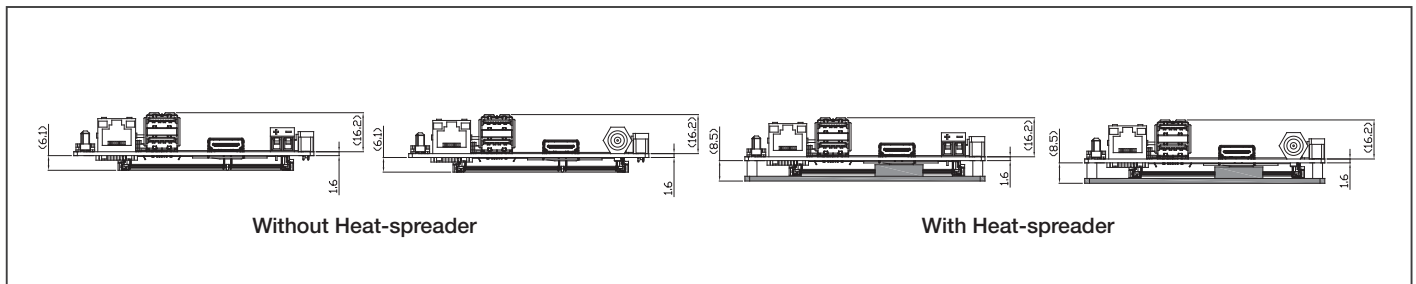
Optional Accessories

Part Number	Description	Qty.
1709070500	SATA CABLE.7P Pitch 1.27mm.50cm	1
1702150155	SATA Power Cable	1
1700050207	USB cable 20cm	1
1703200153	COM x 2, line-out cable	1
PICO-APL1-HSP01	Heat-spreader	1
PICO-APL1-HSK02	Heat-sink, to be used with Heat-spreader	1

Block Diagram



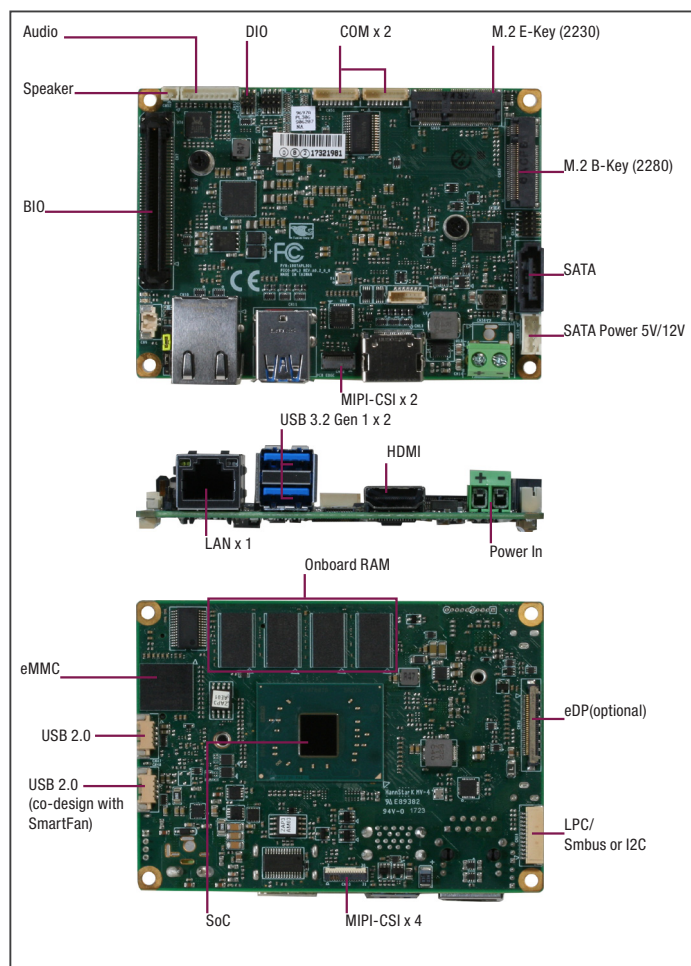
Dimension Unit: mm



Ordering Information

Part Number	CPU	Fan/Fanless	Display	LVDS	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Temp.	Others
PICO-APL1-A10-F001	N4200	W/o Heat-spreader	LVDS/HDMI	24bit, 2CH	SATA x 1, mSATA x 1 (Full-size)	GbE x 1	USB 3.2 Gen 1 x 2 USB 2.0 x 1	1	1	miniCard x 1 (Half-size)	12V Phoenix Terminal	0°C ~ 60°C	DIO x 4, Line-out
PICO-APL1-A10-FD02	N3350	W/o Heat-spreader	HDMI	—	SATA x 1, mSATA x 1 (Full-size)	GbE x 1	USB 3.2 Gen 1 x 2 USB 2.0 x 1	(Optional the COM cable)	(Optional the COM cable)	miniCard x 1 (Half-size)	12V DC-Jack	0°C ~ 60°C	DIO x 4
PICO-APL1-A10-F003	N3350	W/o Heat-spreader	LVDS/HDMI	24bit, 2CH	SATA x 1, mSATA x 1 (Full-size)	GbE x 1	USB 3.2 Gen 1 x 2 USB 2.0 x 1	1	1	miniCard x 1 (Half-size)	12V Phoenix Terminal	0°C ~ 60°C	DIO x 4, Line-out, BIO

Remark: Heatspreader and cooler is recommended as the thermal solution.



Specifications

System	
Form Factor	Pico-ITX
CPU	Intel® Atom™ Processor SoC
CPU Frequency	Up to 2.4 GHz
Chipset	Intel® Atom™ Processor SoC
Memory Type	Onboard DDR3L 2GB (Optional to 4GB)
Max. Memory Capacity	Up to 4GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V, AT/ATX
Power Supply Type	Lockable & phoenix Terminal co-lay
Power Consumption (Typical)	Intel® N4200 processor, DDR3L 4GB, 1.1A@12V
System Cooling	Heat-spreader, heatsink & cooler (Optional)
Dimension	3.94" x 2.84" (100 mm x 72 mm)
Gross Weight	0.55 lb (0.25 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	110,000
Certification	CE,FCC
OS support	Windows 10 (64 bit)
Display	
Chipset	Intel® Atom™ Processor SoC
Resolution	HDMI 1.4b: 3840 x 2160@30Hz Internal eDP: 3840 x 2160@60Hz (Optional) DDI (Optional from BIO)
LCD Interface	eDP

Features

- Intel® Pentium® N4200/ Celeron® N3350/ Atom™ Processor SoC
- Onboard Storage eMMC 32GB (Optional to 16GB/64GB/128GB)
- Onboard DDR3L 2GB or 4GB
- Single Gigabit Ethernet Support
- HDMI 1.4b, eDP for Display
- BIO Reserved (Optional)
- USB 3.2 Gen 1 x 2, USB 2.0 x 2, SATA 6.0Gb/s x 1
- M.2 B Key (2280) x 1, M.2 E Key (2230) x 1
- Onboard HDA Audio Supports (Line in, Line-out, MIC)
- MIPI-CSI 2 Lanes x 1 for 2M Camera (Optional)
- MIPI-CSI 4 Lanes x 1 for 8M Camera (Optional)



I/O	
Storage/SSD	SATA 6.0Gb/s x 1, 5V/12V Power reserved M.2 2280 (B Key) x 1 eMMC 16GB (optional to 32GB/64GB/128GB)
Ethernet	Realtek 8111G x 1
USB Port	USB 3.2 Gen 1 x 2 Rear IO USB 2.0 x 2 (Internal, co-use with FAN connector)
Serial Port	COM1: RS-232 COM2: RS-232
Audio	ALC269 (Included Amp)
DIO	4-bit
Expansion Slot	M.2 2230 x 1 (E-Key) BIO x 1 (Optional) I2C, Smbus, I2S MIPI-CSI x 2 Lanes (Optional) MIPI-CSI x 4 Lanes (Optional)
SIM	—
TPM	TPM2.0 (Optional)

Packing List

- PICO-APL3

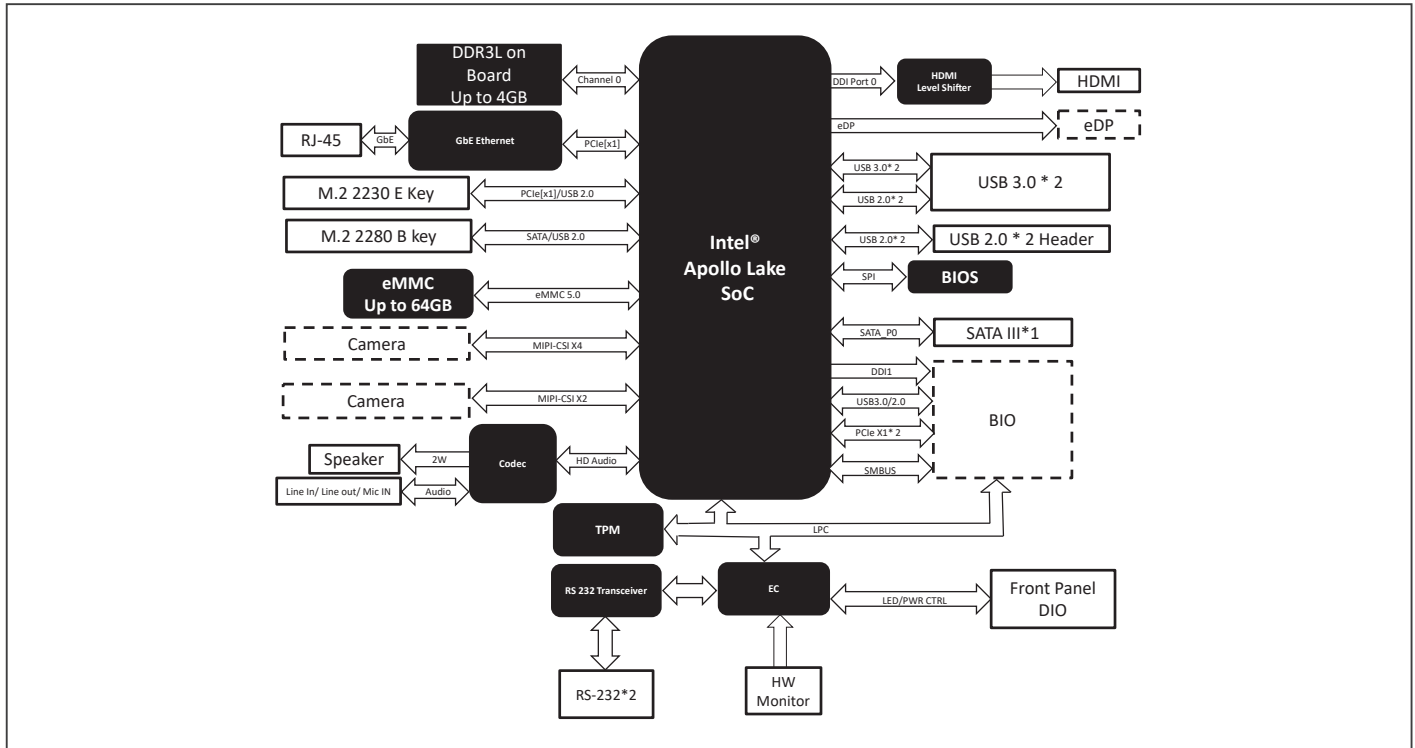
Optional Accessories

Part Number	Description	Qty
1709070500	(TF) SATA Cable, 50cm	1
1702150155	(TF) SATA Power Cable, 15cm	1
PICO-APL3-HSK01	Heatsink, used with heat spreader	1
PICO-APL3-HSP01	Heat Spreader	1
1700040151	(TF) USB Cable, 15cm	2
1701090122	(TF) Flat Cable, D-Sub 9P(M), 9P 1.0mm Housing, 12cm	2
1709100254	(TF) Phone Jack Cable, 25cm	1
1255300408	(TF) Power Adapter, 12V, 40W, FSP, FSP040-RHAN2.9NA0404990, ESD	1
1702030176	(TF) Power Cable, 3P DC jack, TERMINAL*2.17cm, TKS-G21-LN05	1

*Please refer to PICO-APL3-SEMI page for further option.

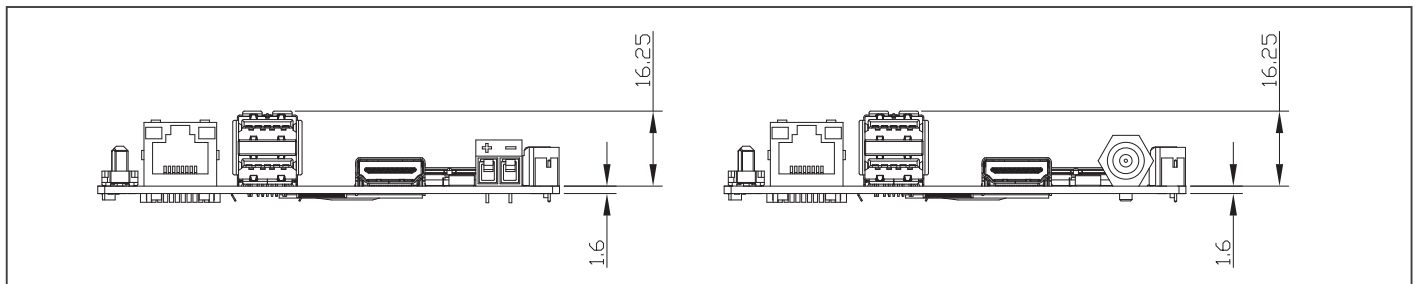
*eDP cable custom by required.

Block Diagram



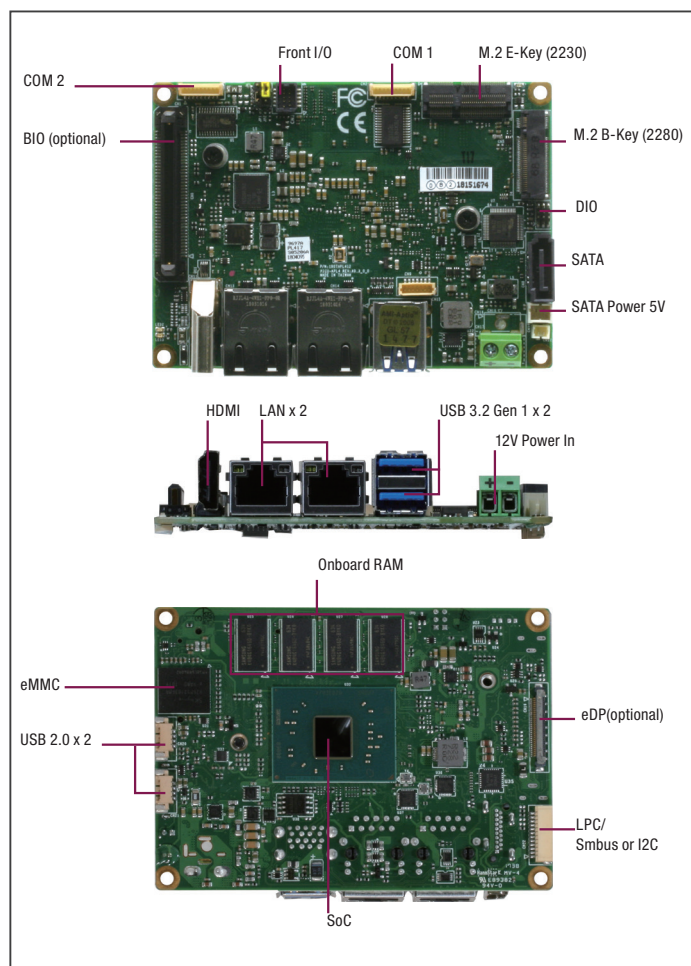
Dimension

Unit: mm



Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Temp.	Others
PICO-APL3-A10-F001	Celeron® N3350 (Dual Core)	Onboard DDR3L 2GB	W/o Heatspreader	HDMI x 1	SATA 3.0 x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	2	—	M.2 2230 (E Key) x 1	+12V (Phoenix Terminal)	0°C ~ 60°C	DIO 4 bit Full Audio with Amp
PICO-APL3-A10-F002	Celeron® N3350 (Dual Core)	Onboard DDR3L 4GB	W/o Heatspreader	HDMI x 1 eDP x 1	SATA 3.0 x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	2	—	M.2 2230 (E Key) x 1	+12V (Phoenix Terminal)	0°C ~ 60°C	DIO 4 bit Full Audio with Amp
PICO-APL3-A10-F003	Pentium® N4200 (Quad Core)	Onboard DDR3L 4GB	W/o Heatspreader	HDMI x 1	SATA 3.0 x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	2	—	M.2 2230 (E Key) x 1	+12V (Phoenix Terminal)	0°C ~ 60°C	DIO 4 bit Full Audio with Amp
PICO-APL3-A10-FD04	Celeron® N3350 (Dual Core)	On board DDR3L 2GB	W/o Heatspreader	HDMI x 1	SATAIII x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	2	—	M.2 2230 (E Key) x 1	+12V (DC Jack)	0°C ~ 60°C	DIO 4 bit Full Audio with Amp



Specifications

System	
Form Factor	Pico-ITX
CPU	Intel® Pentium® N4200 (4C. 1.1 GHz, up to 2.5 GHz, TDP 6W) Intel® Celeron® N3350 (2C. 1.1 GHz, up to 2.4 GHz, TDP 6W) Intel® Atom® x7-Series (4C. 1.6GHz, up to 2.00 GHz, TDP 12W)
CPU Frequency	Up to 2.4GHz
Chipset	Intel® SoC
Memory Type	Onboard DDR3L 2GB (Optional to 4GB)
Max. Memory Capacity	Up to 4GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V, AT/ATX
Power Supply Type	Lockable & Phoenix Terminal co-lay
Power Consumption (Typical)	Intel®Pentium®N4200@1.1GHz,DDR3L 4GB 1.43A@+12V
System Cooling	Heat-spreader, heatsink & cooler (Optional)
Dimension	3.94" x 2.84" (100 mm x 72 mm)
Gross Weight	0.55 lb (0.25 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	191,895
Certification	CE,FCC
OS support	Windows 10 (64 bit)

Features

- Intel® Atom™/ Pentium® N4200/ Celeron® N3350 Processor SoC
- Onboard DDR3L 2GB (Optional to 4GB)
- Onboard Storage eMMC 32GB (optional to 16GB/64GB/128GB)
- Dual Gigabit Ethernet Support
- HDMI 1.4b, eDP (Optional) for Display
- BIO Reserved (Optional)
- USB 3.2 Gen 1 x 2, USB 2.0 x 2, SATA 6.0Gb/s x 1
- M.2 B Key (2280) x 1, M.2 E Key (2230) x 1



Display	
Chipset	Intel® SoC
Resolution	HDMI 1.4b: 3840 x 2160@30Hz Internal eDP: 3840 x 2160@60Hz (Optional) DDI (Optional from BIO)
LCD Interface	eDP
I/O	
Storage/SSD	SATA 6.0Gb/s x 1, 5V Power reserved M.2 2280 (B Key) x 1 eMMC 32GB (Optional to 16GB/64GB/128GB)
Ethernet	Realtek 8111G x 2
USB Port	USB 3.2 Gen 1 x 2 Rear IO USB 2.0 x 2 (Internal, co-use with FAN connector)
Serial Port	COM1: RS-232 x 1 COM2: RS-232/422/485 x 1
Audio	—
DIO	4-bit
Expansion Slot	M.2 2230 x 1 (E-Key) BIO x 1 (optional) I2C, Smbus
SIM	—
TPM	—

Packing List

- PICO-APL4

Optional Accessories

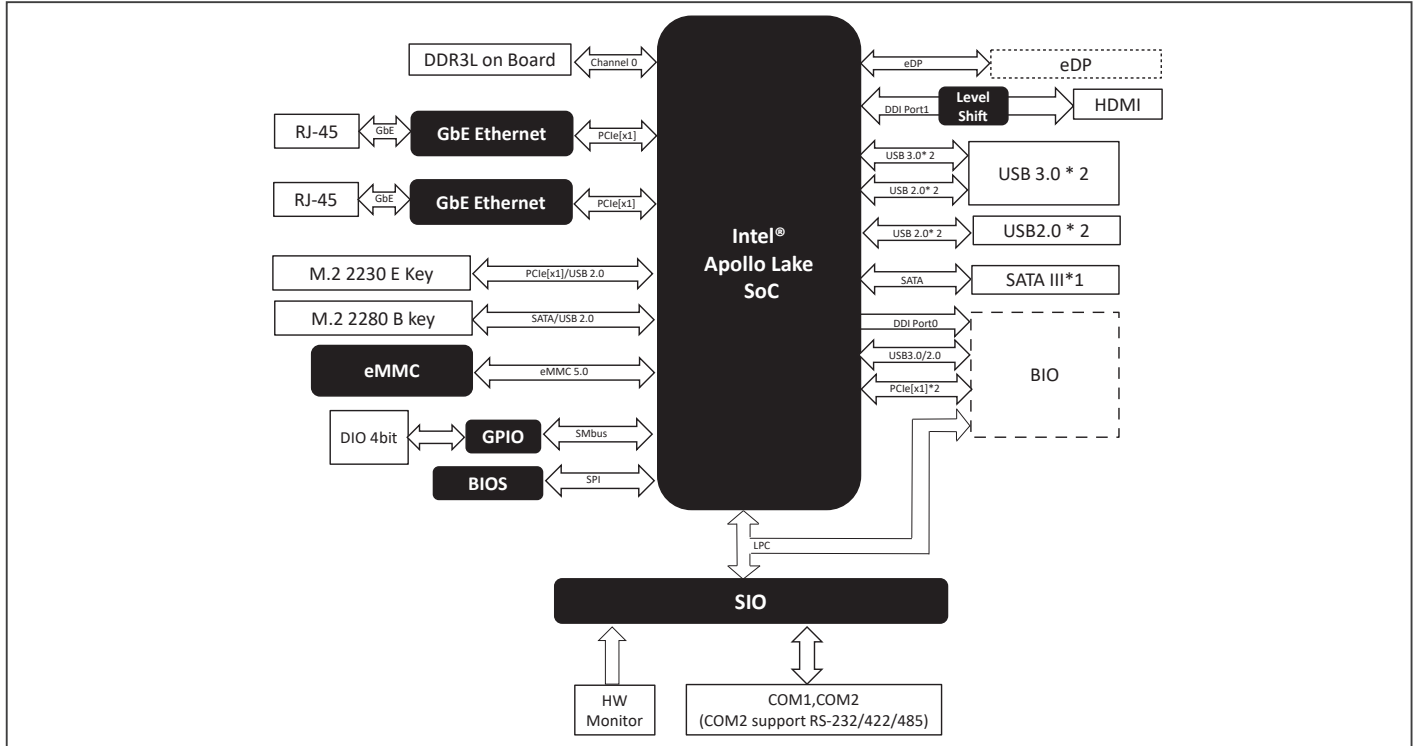
Part Number	Description	Qty
1709070500	(TF) SATA Cable, 50cm	1
1702150155	(TF) SATA Power Cable, 12cm	1
PICO-APL4-HSK01	Heat Sink.100*72*15.5mm.Silver.used with HSP	1
PICO-APL4-HSP01	Heat Spreader, 100 x 72 x 8.5 mm, Silver	1
1700040151	(TF) USB Cable, 15cm	2
1701090122	(TF)Flat Cable, D-Sub 9P(M), 9P 1.0mm Housing, 12cm	2
PICO-APL4-FAN01	CPU Cooler, 100*72*15.5mm, Silver, use w/HSP	1

*FAN Solution will be via one of internal USB port without FAN speed control.

*Please refer to PICO-APL4-SEMI for further option.

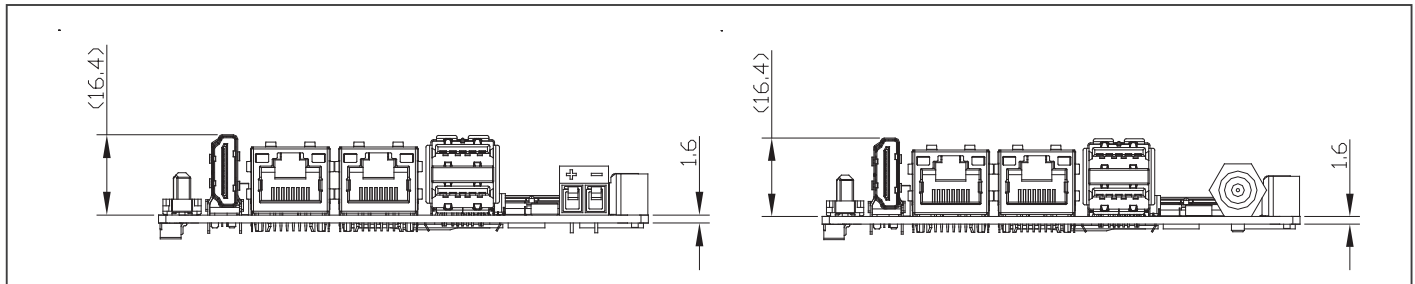
*eDP cable custom by required

Block Diagram



Dimension

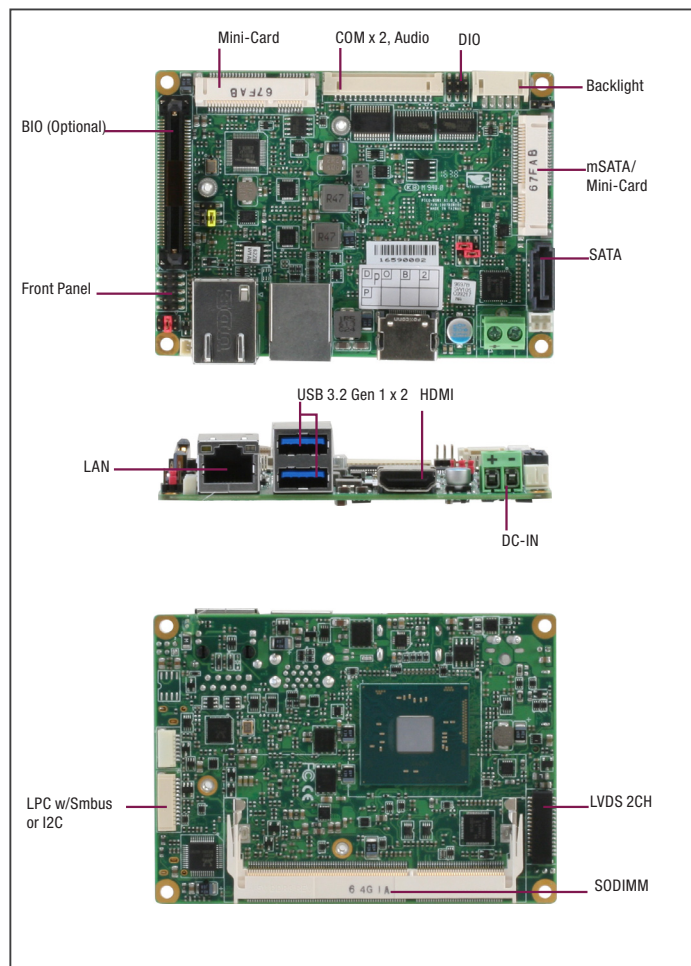
Unit: mm



Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Temp.	Others
PICO-APL4-A10-F001	Celeron® N3350 (Dual Core)	Onboard DDR3L 2GB	W/o Heatspreader	HDMI x 1	SATA 6.0Gb/s x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (Phoenix Terminal)	0°C ~ 60°C	DIO 4 bit
PICO-APL4-A10-F002	Celeron® N3350 (Dual Core)	Onboard DDR3L 4GB	W/o Heatspreader	HDMI x 1 eDP x 1	SATA 6.0Gb/s x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (Phoenix Terminal)	0°C ~ 60°C	DIO 4 bit
PICO-APL4-A10-F003	Pentium® N4200 (Quad Core)	Onboard DDR3L 4GB	W/o Heatspreader	HDMI x 1	SATA 6.0Gb/s x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (Phoenix Terminal)	0°C ~ 60°C	DIO 4 bit
PICO-APL4-A10-FD04	Celeron® N3350 (Dual Core)	Onboard DDR3L 2GB	W/o Heatspreader	HDMI x 1	SATAIII x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 2	USB 3.2 Gen 1 x 2 (Rear) USB 2.0 x 2 (Internal)	1	1	M.2 2230 (E Key) x 1	+12V (DC Jack)	0°C ~ 60°C	DIO 4 bit

Remark: cooler is recommended as the thermal solution.



Specifications

System	
Form Factor	Pico-ITX
CPU	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
CPU Frequency	Up to 2.24 GHz
Chipset	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1600, Max. 8GB
Max. Memory Capacity	Up to 8GB
BIOS	AMI/SPi
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V DC
Power Supply Type	AT/ATX (default) optional lockable connector
Power Consumption (Typical)	Intel® Pentium® N3160@ DDR3L-1600MHz 8GB, 0.91A@+12V
System Cooling	Heat-spreader; Heat-sink & cooler (optional)
Dimension	3.94" x 2.84" (100 mm x 72 mm)
Gross Weight	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	100,000
Certification	CE,FCC
OS support	Windows 10 (64 bit)

Features

- Onboard Intel® Atom™ x5-E8000/ Pentium®/ Celeron® N3000 Series Processor SoC
- DDR3L 1600/1066 SODIMM x 1, Up to 8 GB
- LVDS up to 48-bit (2CH)
- Supports Triple Displays (Optional)
- HDMI Up to 3840 x 2160 (4K) Resolution
- SATA 3.0 x 1, mSATA (Full Size) x 1 or MiniCard x 1 (Optional)
- Gigabit Ethernet x 1, RJ-45 x 1
- USB 3.2 Gen 1 x 2
- RS-232 x 1, RS-232/422/485 x 1
- Mini-Card x 1 (Half-Size)
- Digital I/O 4-bit
- BIO Connector for Daughter Board (Optional)



Display	
Chipset	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
Resolution	LVDS (18/24bit 2CH) 1920 x 1200 HDMI up to 3840 x 2160 (4K) DDI (optional by BIO board)
LCD Interface	18/24-bit 2CH LVDS
I/O	
Storage/SSD	SATA 6.0Gb/s x 1, mSATA/MiniCard (Full size) x 1
Ethernet	Realtek RTL 8111E, 10/100/1000Base-TX, RJ-45 x 1
USB Port	USB 3.2 Gen 1 x 2 Rear I/O
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)
Audio	Line-out x 1
DIO	4-bit (2-in, 2-out)
Expansion Slot	Mini Card(Half-size) x 1, BIO x 1, I2C x 1 or Smbus x 1, LPC
SIM	—
TPM	—

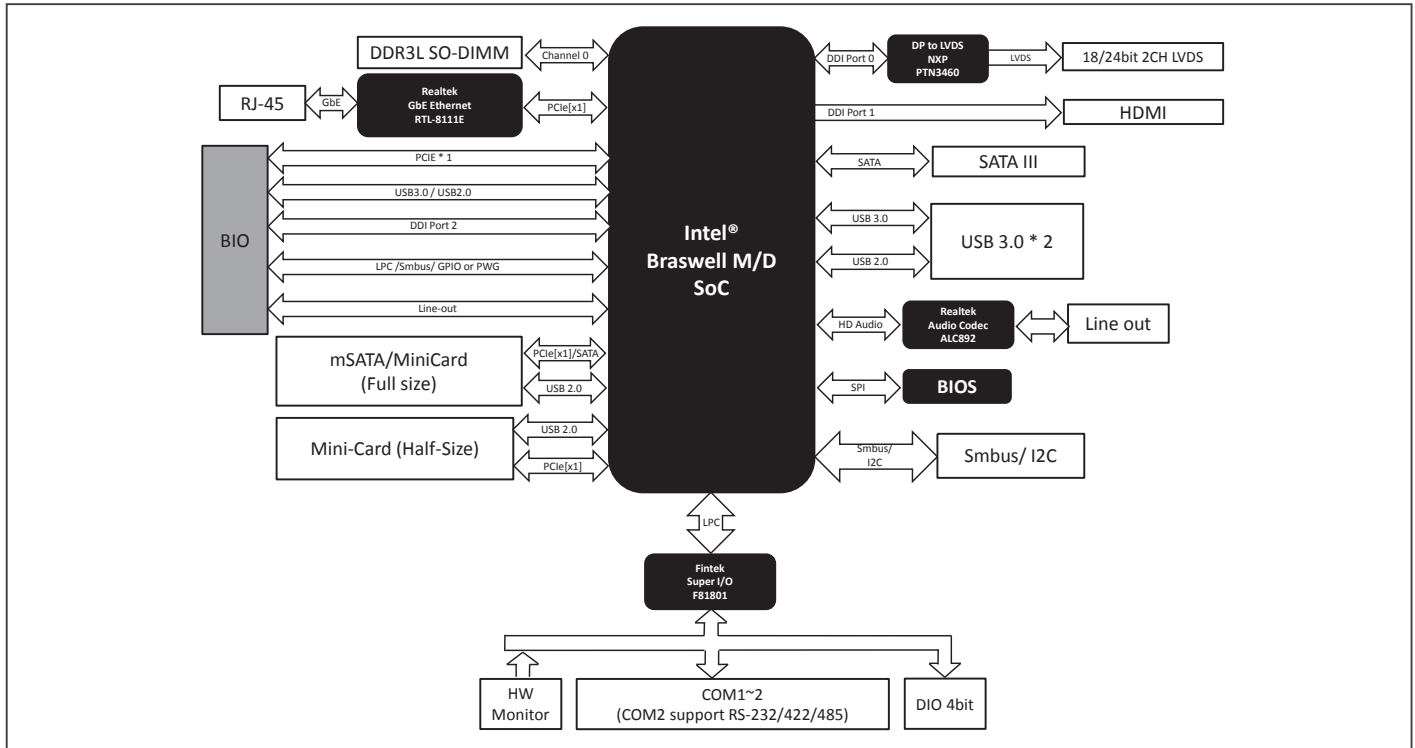
Packing List

- M10BT01010
Heat Spreader
- 1703200153
COM x 2, Line-out Cable
- PICO-BSW1

Optional Accessories

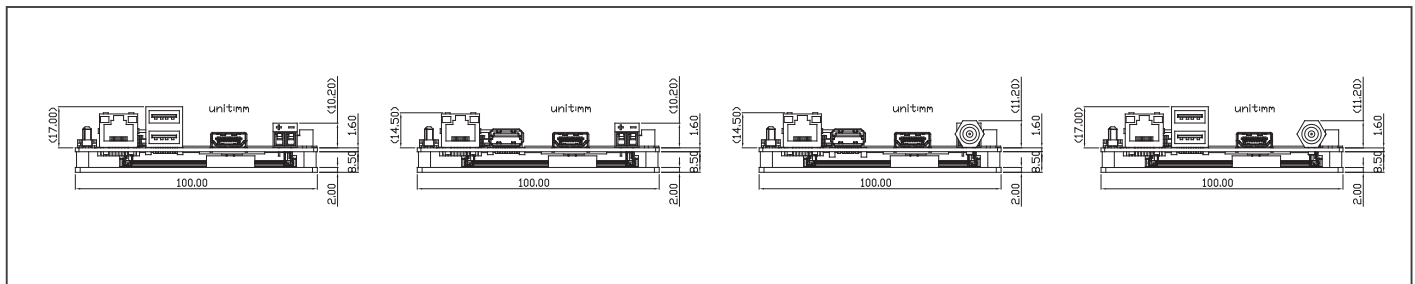
Part Number	Description	Qty.
1709070500	(TF)SATA CABLE.7P Pitch 1.27mm.50cm	1
1702150155	(TF)SATA Power Cable	1
1702040167	Power/FAN Cable 16cm	1
PICO-BSW1-FAN01	CPU Cooler.84*53*22.2mm.Silver.used with HSP	1
PICO-BSW1-HSK01	Heat Sink.100*72*15.5mm.Silver.used with HSP	1

Block Diagram



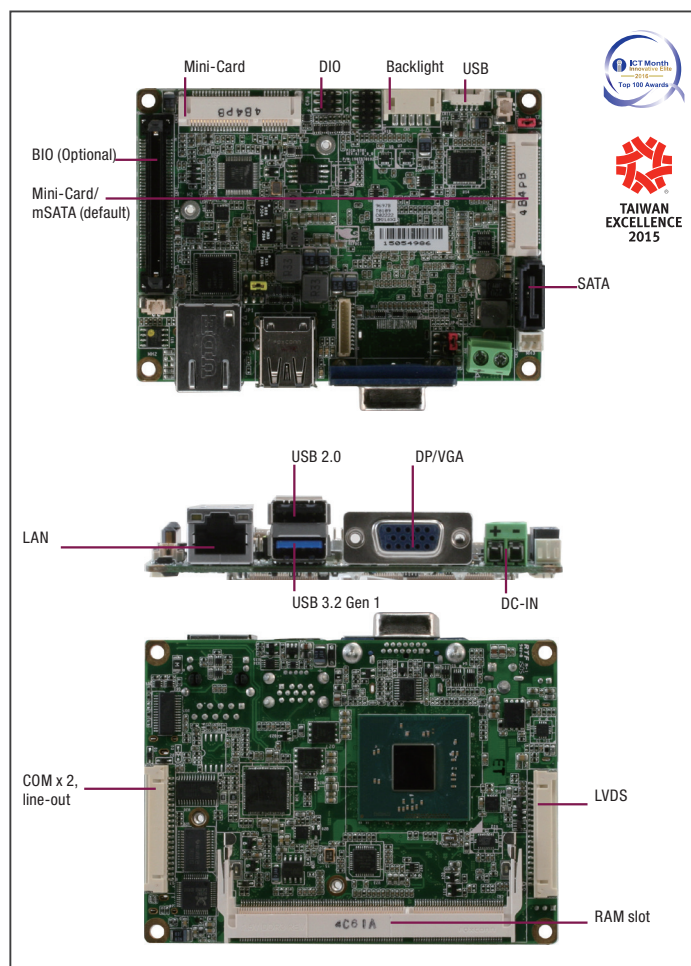
Dimension

Unit: mm



Ordering Information

Part Number	CPU	Fan/Fanless	Display	LVDS	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Temp.	Others
PICO-BSW1-A10-0001	N3160	Heat-Spreader	LVDS/HDMI	24bit,2CH	SATA x 1, mSATA x 1 (Full-size)	GbE x 1	USB 3.2 Gen 1 x 2	1	1	miniCard x 1 (Half-size)	12V (Terminal block)	0°C ~ 60°C	BIO x 1, DIO x 4, Line-out
PICO-BSW1-A10-0002	X5-E8000	Heat-Spreader	LVDS/HDMI	24bit,2CH	SATA x 1, mSATA x 1 (Full-size)	GbE x 1	USB 3.2 Gen 1 x 2	1	1	miniCard x 1 (Half-size)	12V (Terminal block)	0°C ~ 60°C	DIO x 4, Line-out



Specifications

System	
Form Factor	Pico-ITX
CPU	Onboard Intel® Atom™ E3845/ Celeron® J1900/N2807 Processor SoC
CPU Frequency	Up to 2.0 GHz
Chipset	Intel® E3845/J1900/N2807
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1066/1333, Max. 8GB
Max. Memory Capacity	Up to 8GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 levels
Power Requirement	+12VDC
Power Supply Type	AT/ATX (default) optional lockable connector
Power Consumption (Typical)	Intel® Celeron® J1900 2.0GHz, DDR3L 1333 MHz 8 GB 1.14A@+12V
System Cooling	Heat-spreader, heatsink or cooler optional
Dimension	3.94" x 2.84" (100 mm x 72 mm)
Gross Weight	0.88lb (0.4 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000
Certification	CE, FCC
OS support	Windows 10 (64 bit)
Display	
Chipset	Intel® E3845/J1900/N2807
Resolution	VGA up to 2048 x 1152 @60Hz or DP up to 2560 x 1400 @60Hz LVDS (18/24-bit) up to 1400 x 900 @60Hz
LCD Interface	18/24-bit Single LVDS

Features

- Onboard Intel® Atom™ E3800/ Celeron® J1900/N2807 Processor SoC
- DDR3L 1066/1333 MHz SODIMM x 1, Up to 8 GB
- 18/24-bit LVDS LCD, CRT Co-lay Display Port
- SATA 3.0Gb/s x 1, Mini-Card(Full size)/mSATA(default) x 1
- USB 3.2 Gen 1 x 1, USB 2.0 x 2
- Gigabit Ethernet x 1, RJ-45 x 1
- RS-232 x 1, RS-232/422/485 x 1
- Mini-card x 1 (Half size)
- 4-Bit Digital I/O
- BIO Connector for Daughter Board Optional



I/O	
Storage/SSD	SATA 3.0Gb/s x 1, Mini-Card(Full size)/mSATA(default) x 1
Ethernet	Intel Gigabit Ethernet, 10/100/1000Base-TX x 1 (Atom E series with I210IT, Celeron J/N series with I211AT)
USB Port	USB 3.2 Gen 1 x 1 Rear IO, USB 2.0 x 1 Rear IO and x 1 Pin header
Serial Port	RS-232 x 1, RS-232/422/485 x 1 (Ring /+5V/+12V)
Audio	Line-out x 1
DIO	4-bit (2-in, 2-out)
Expansion Slot	Mini-Card (Half-size) x 1, BIO x 1
SIM	Option by BIO Board
TPM	—

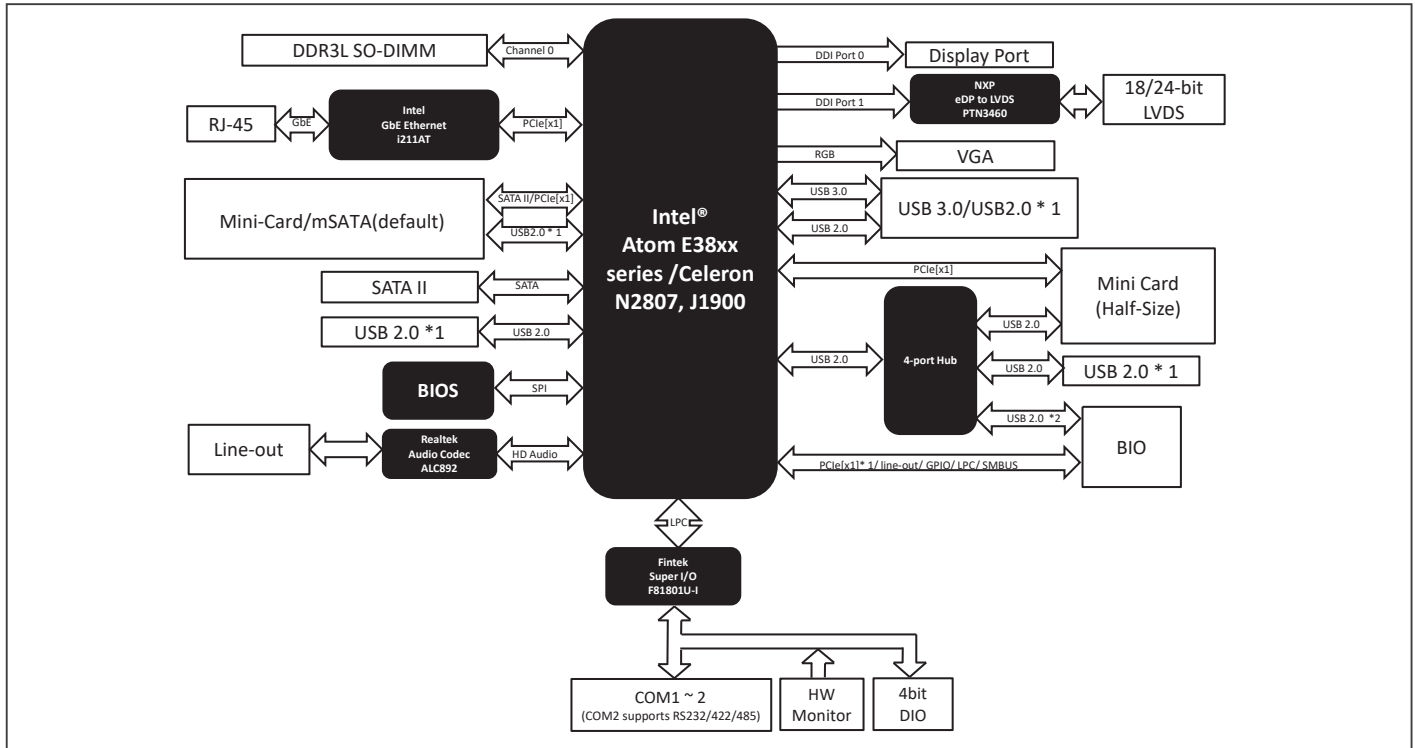
Packing List

- PICO-BT01-HSP01
Heat Spreader
- 1703200153
COM x 2, Line-out Cable
- PICO-BT01

Optional Accessories

Part Number	Description	Qty.
1709070500	SATA Cable	1
1702150155	SATA Power Cable	1
1702040167	Power/FAN Cable 16cm	1
PICO-BT01-FAN01	CPU Cooler.84*53*22.2mm.Silver.used with HSP	1
PICO-BT01W1-HSK01	Heatsink for E3845 WITAS1. To be used with heat Spreader.	1
PICO-BT01-HSK01	Heatsink for standard product.To be used with heat Spreader.	1
1700050207	USB Cable 20cm	—

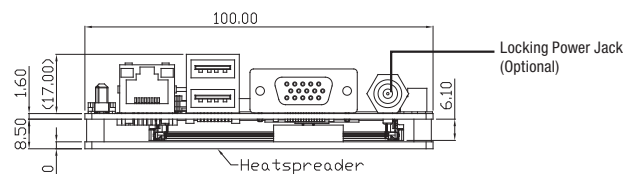
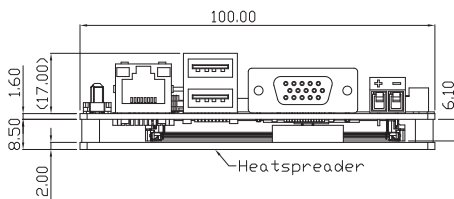
Block Diagram



Dimension

Unit: mm

Standard model with Heat-Spreader



Ordering Information

Part Number	CPU	RAM	Fan/Fanless	Display	LVDS	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Temp.	Others
PICO-BT01-A11-0002	Celeron® N2807 (Dual Core)	DDR3L, Max. 4GB	Heat-spreader	DP+LVDS	24bit 1CH	SATAII x 1, Mini-Card (Full size)/mSATA (default) x 1	GbE x 1	USB 3.2 Gen 1 x 1, USB2.0 x 2	1	1	Mini-card x 1 (Half size), DIO 4-bit	+12V (Terminal block)	32°F ~ 131°F (0°C ~ 60°C)	Line-out
PICO-BT01-A11-0003	Atom™ E3845 (Quad Core)	DDR3L, Max. 8 GB	Heat-spreader	CRT+LVDS	24bit 1CH	SATAII x 1, Mini-Card (Full size)/mSATA (default) x 1	GbE x 1	USB 3.2 Gen 1 x 1, USB2.0 x 2	1	1	Mini-card x 1 (Half size), DIO 4-bit	+12V (Terminal block)	32°F ~ 131°F (0°C ~ 60°C)	Line-out, BIO x 1
PICO-BT01-A11-0004	Atom™ E3825 (Dual Core)	DDR3L, Max. 8 GB	Heat-spreader	DP+LVDS	24bit 1CH	SATAII x 1, Mini-Card (Full size)/mSATA (default) x 1	GbE x 1	USB 3.2 Gen 1 x 1, USB2.0 x 2	1	1	Mini-card x 1 (Half size), DIO 4-bit	+12V (Terminal block)	32°F ~ 131°F (0°C ~ 60°C)	Line-out
PICO-BT01-A11-0005	Celeron® J1900 (Quad Core)	DDR3L, Max. 8 GB	Heat-spreader	CRT+LVDS	24bit 1CH	SATAII x 1, Mini-Card (Full size)/mSATA (default) x 1	GbE x 1	USB 3.2 Gen 1 x 1, USB2.0 x 2	1	1	Mini-card x 1 (Half size), DIO 4-bit	+12V (Terminal block)	32°F ~ 131°F (0°C ~ 60°C)	Line-out
PICO-BT01W2-A11-0003	Atom™ E3845 (Quad Core)	DDR3L, Max. 8 GB	Heat-spreader	CRT+LVDS	24bit 1CH	SATAII x 1, Mini-Card (Full size)/mSATA (default) x 1	GbE x 1	USB 3.2 Gen 1 x 1, USB2.0 x 2	1	1	Mini-card x 1 (Half size), DIO 4-bit	+12V (Terminal block)	WiTAS 2 (-40°C ~ 85°C)	Line-out, BIO x 1
PICO-BT01W2-A11-0004	Atom™ E3825 (Quad Core)	DDR3L, Max. 8 GB	Heat-spreader	DP+LVDS	24bit 1CH	SATAII x 1, Mini-Card (Full size)/mSATA (default) x 1	GbE x 1	USB 3.2 Gen 1 x 1, USB2.0 x 2	1	1	Mini-card x 1 (Half size), DIO 4-bit	+12V (Terminal block)	WiTAS 2 (-40°C ~ 85°C)	Line-out

PICO-WHU4-SEMI

Pico-ITX Embedded Barebone with 8th Generation Intel® Core™ i7/i5/i3/Celeron® U-Series Processor SoC

Front View



Rear View



Features

- 8th Intel® Core™ i7/i5/i3/Celeron Processor SoC
- Non-ECC DDR4 SODIMM Slot x 1, up to 32GB
- Dual HDMI ports (HDMI 1.4b), GbE x 2
- SATA 6.0 Gb/s x 1, support 2.5" SSD
- Full size mSATA/mPCIe x 1 (Select by BIOS), M.2 2230 (E key) x 1
- USB 3.2 Gen 2 x 2, USB 2.0 x 2
- RS-232/422/485 x 2 (Optional)
- Lockable DC 12V



Display	
Chipset	Intel® SoC
Video Output	HDMI 1.4
I/O	
Storage/SSD	Full size mSATA/mPCIe or USB2.0 x 1 (PCIe as default, mSATA selected by BIOS) SATA 6.0Gb/s x 1, (5V Power)
USB Port	USB 3.2 Gen 2 x 2 (Rear IO) USB 2.0 x 2 (Via cable to Rear IO)
Serial Port	RS-232/422/485 x 2 (Optional)
Audio	—
Expansion Slot	—
Certification	
Certification	CE, FCC

Specifications

System	
Form Factor	PICO-ITX
Processor	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) Celeron® 4305UE (2C, 2GHz)
System Memory	DDR4 2400MHz SODIMM x 1, Max. 32 GB
Chipset	Intel® SOC
Ethernet	Realtek 8111G Gigabit Ethernet 10/100/1000Mbps, RJ-45 x2
BIOS	UEFI only
Wake on LAN	Yes
Watchdog Timer	255 Level
Expansion Interface	2230 M.2 E-Key x 1 (for WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1
Power Requirement	Normal: +12V
Power Supply Type	Lockable
Power Consumption	i7-8665UE @ DDR4 16GB, 12V@2.23A
System Size	5.9" x 3.94" x 2.36" (150mm x 100mm x 60mm)
Gross Weight	982g (including packing) 635g (excluding packing)
Operation Temp.	32°F ~ 140°F (0°C ~ 60°C) without airflow 0.5m/s for SSD SKU
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	298,762
OS support	Windows 10 (64 bit) Ubuntu 18.04.3/Kernel 5.0

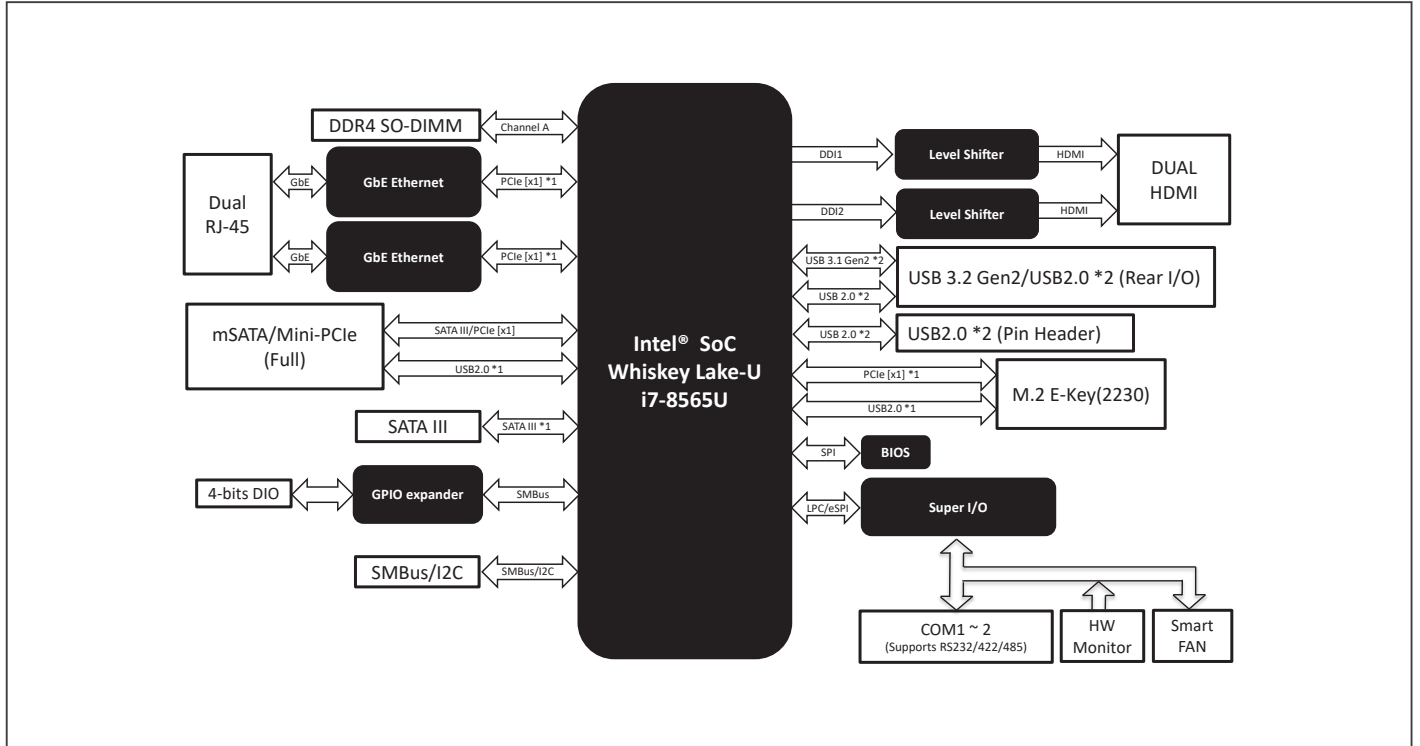
Packing List

- PICO-WHU4-SEMI

Optional Accessories

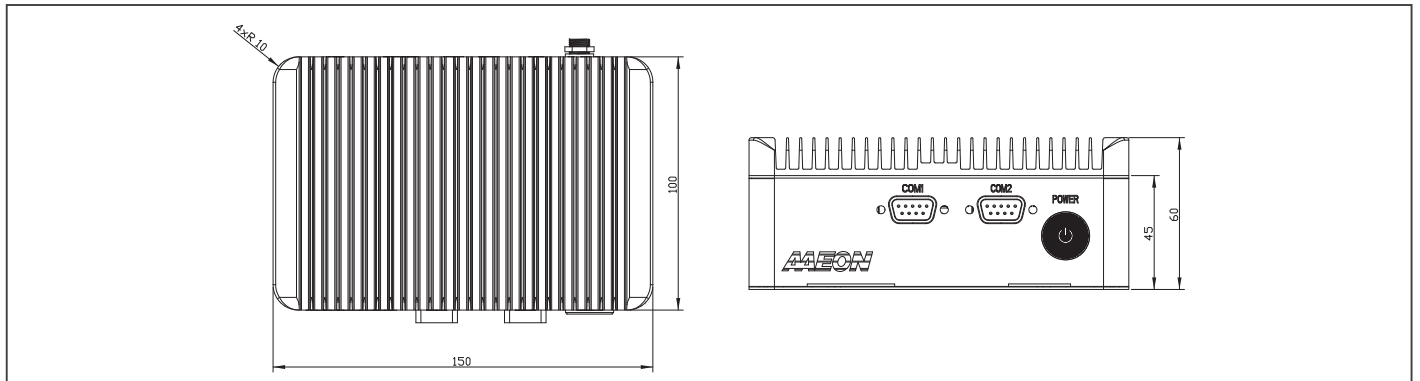
Part Number	Description	Qty.
1701200102	(TF)SERIAL Cable.WL1010H-2*10P 1.0mm Housing.Dual DB9(M).10cm	1
1255300960	Power Adapter 12V/8A 96W FSP096-AHAN3	1
1702031802	Power Cord (US Type)	1
1702031803	Power Cord (Europe Type)	1
170203180E	Power Cord (Japan)	1
PICO-WHU4-SEMI-VESA1	PICO-WHU4-SEMI VESA bracket kit	1
PICO-WHU4-SEMI-WMT1	PICO-WHU4-SEMI Wallmount bracket kit	1

Block Diagram



Dimension

Unit: mm



Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232/422/485	Expansion Slot	Power	Power Temp
PICO-WHU4-SEMI-A11-S001	Celeron 4305UE	DDR4 Socket	w/Cooler	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 (Via cable to Rear I/O)	Optional	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 60°C
PICO-WHU4-SEMI-A11-S002	i3-8145UE	DDR4 Socket	w/Cooler	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 (Via cable to Rear I/O)	Optional	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 60°C
PICO-WHU4-SEMI-A11-S003	i5-8365UE	DDR4 Socket	w/Cooler	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 (Via cable to Rear I/O)	Optional	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 60°C
PICO-WHU4-SEMI-A11-S004	i7-8665UE	DDR4 Socket	w/Cooler	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 (Via cable to Rear I/O)	Optional	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 60°C
PICO-WHU4-SEMI-A11-S005	i7-8665UE	8GB DDR4 2400Mhz SODIMM	w/Cooler	HDMI x 2	SATAIII x 1 mSATA (Full size) x 1	GbE x 2	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 (Via cable to Rear I/O)	2	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 60°C

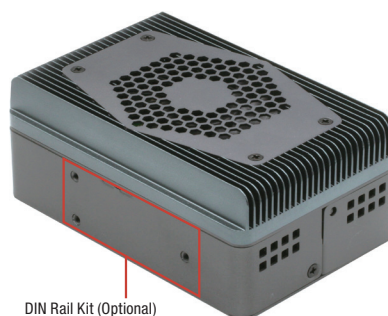
PICO-KBU4-SEMI

Pico-ITX TurnKit with 7th Generation Intel® Core™ i7/i5/i3/Celeron® U-Series Processor SoC

Front View



Rear View



DIN Rail Kit (Optional)

Features

- Extreme light system, easy to adopt everywhere
- DDR4 Non-ECC SODIMM Slot x 1, up to 16GB
- GbE x 2, HDMI x 1.4
- M.2 2242 B key for storage
- M.2 2230 E key for wireless Module
- COM x 2 (Optional)
- USB 3.2 Gen 1 x 2 (Rear IO)
- Lockable DC 12V



I/O	
Storage/SSD	M.2 2242 B key
USB Port	USB 3.2 Gen 1 x 2 (Rear IO)
Serial Port	Optional
Audio	—
Expansion Slot	RS-232 x 1, RS-232/422/485 x1 (Optional)
Certification	
Certification	CE, FCC

Packing List

- PICO-KBU4-SEMI

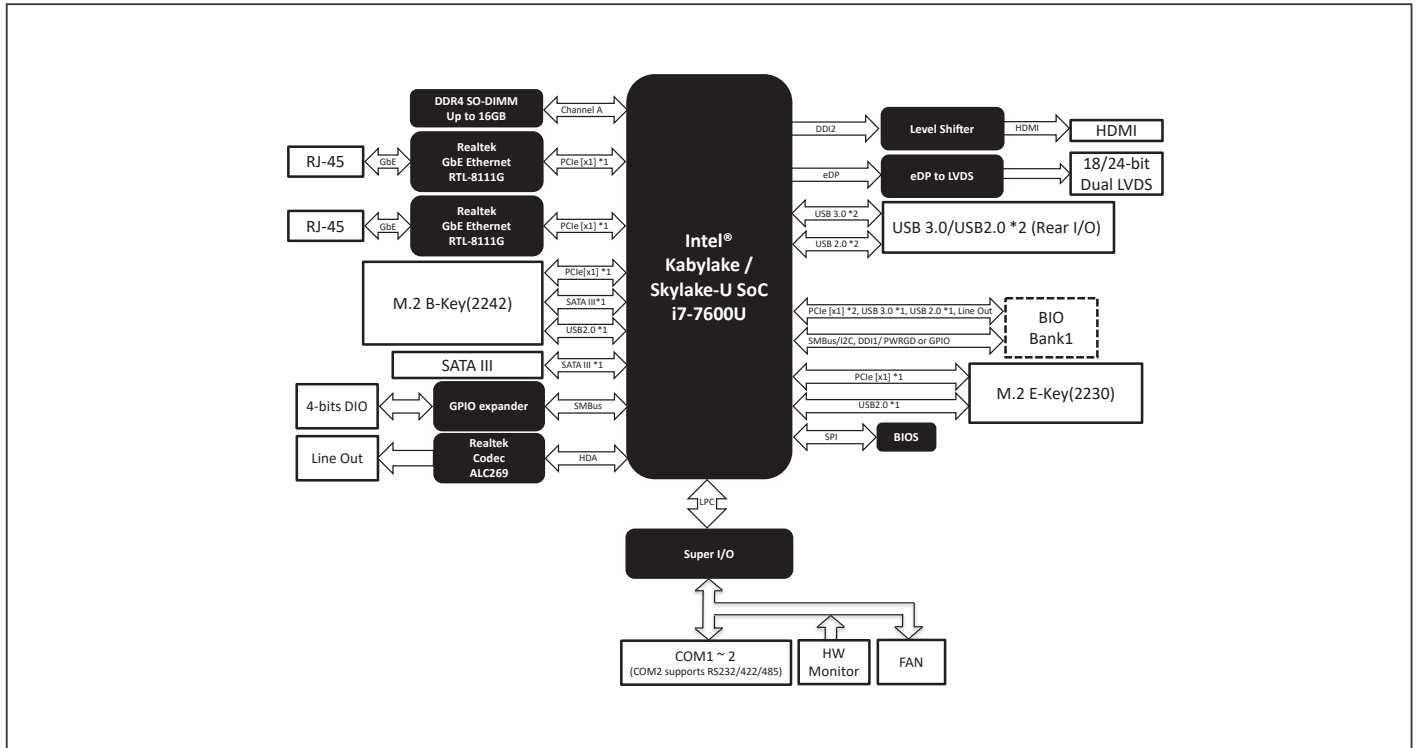
Specifications

System	
Form Factor	Pico-ITX
Processor	7th Gen Intel® Core™ i processor U series
System Memory	DDR4 SODIMM Slot x 1, Up to 16 GB
Chipset	Intel® SoC
Ethernet	Realtek 8111G Gigabit Ethernet 10/100/1000Base, RJ-45 x 2
BIOS	AMI BIOS
Wake on LAN	Yes
Watchdog Timer	255 Level
Expansion Interface	M.2 2230 E key (For WIFI/BT Module)
Power Requirement	Normal: +12V
Power Supply Type	Lockable
Power Consumption	I7-7600 @ DDR4 16GB, 12V@2.3A
System Size	4.8" x 3.15" x 2" (122 x 72 x 50 mm)
Gross Weight	0.88 lb (0.4 kg)
Operation Temp.	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	163,000
OS support	Windows 10 (64 bit)
Display	
Chipset	Intel® SoC
Video Output	HDMI 1.4

Optional Accessories

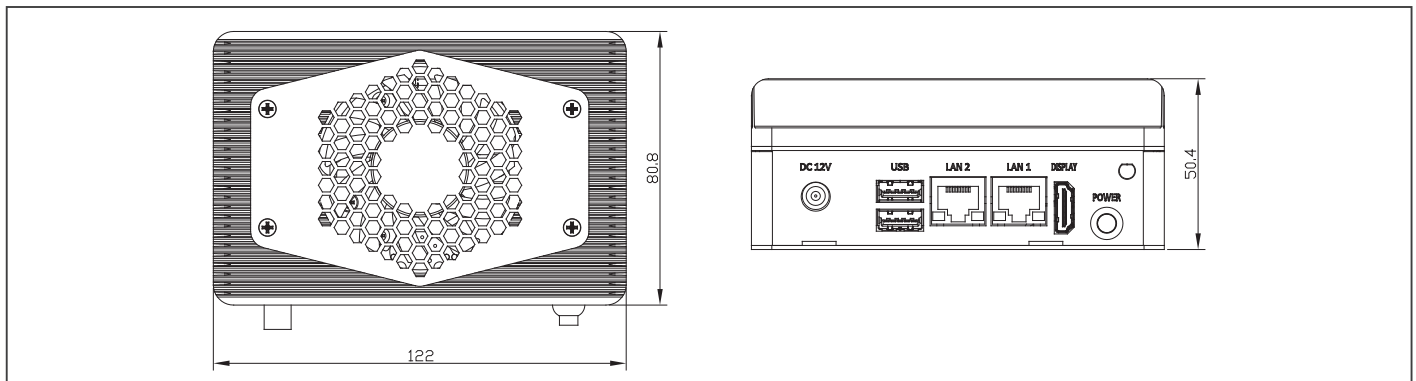
Part Number	Description	Qty.
125530040C	(TF)Power Adapter.12V.40W.FSP.FSP040-DHAN3	1
1702031802	Power Cord (US)	1
1702031803	Power Cord(European Type)	1
170203180E	Power Cord(Japan Type)	1
1701200101	(TF)SERIAL Cable.WL1010H-2*10P 1.0mm Housing.Dual DB9(M). Line-Out Jack.10cm	1
9761SEMI01	Din Rail Kit	1
9761SEMI00	Wall mount Kit	1

Block Diagram



Dimension

Unit: mm



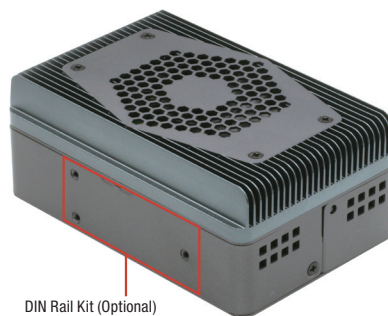
Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Power Temp	Others
PICO-KBU4-SEMI-A10-B001	Celeron 3965	DDR4 Socket	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	DIO 4 bit
PICO-KBU4-SEMI-A10-B002	i3-7100U	DDR4 Socket	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	DIO 4 bit
PICO-KBU4-SEMI-A10-B003	i5-7300U	DDR4 Socket	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	DIO 4 bit
PICO-KBU4-SEMI-A10-B004	i7-7600U	DDR4 Socket	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	DIO 4 bit
PICO-KBU4-SEMI-A10-B005 (6th Gen)	Celeron 3955	DDR4 Socket	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2242 (B Key) x 1	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	DIO 4 bit

Front View



Rear View



DIN Rail Kit (Optional)

Specifications

System	
Form Factor	Pico-ITX
Processor	Intel® Pentium® N4200 (4C): 1.1GHz, up to 2.5GHz, TDP 6W Intel® Celeron® N3350 (2C): 1.1GHz, up to 2.4GHz, TDP 6W *Wait for E3900 series in 2019 within ATRF according
System Memory	DDR3L, memory down, up to 4GB
Chipset	Intel® SoC
Ethernet	Realtek 8111G x 2 10/100/1000Mbps, RJ-45 x 2
BIOS	AMI BIOS
Wake on LAN	Yes
Watchdog Timer	255 Levels
Expansion Interface	M.2 2230 E key (For WIFI/BT Module)
Power Requirement	Normal: +12V
Power Supply Type	Lockable
Power Consumption	Intel®Pentium®N4200@ 1.1GHz,DDR3L 4GB 1.43A@+12V
System Size	4.8" x 3.15" x 2" (122 mm x 72 mm x 50 mm)
Gross Weight	0.88 lb (0.4 kg)
Operation Temp.	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	191,000
OS support	Windows 10 (64 bit)
Display	
Chipset	Intel® SoC
Video Output	HDMI 1.4

Features

- Extreme light system, easy to adopt everywhere
- Onboard DDR3L 2GB/4G
- Onboard Storage eMMC 32GB
- GbE x 2, HDMI x 1.4
- M.2 2280 B key for storage
- M.2 2230 E key for wireless Module
- COM x 2 (Optional)
- USB 3.2 Gen 1 x 2 (Rear IO), USB2.0 x 1 (Optional)
- Lockable DC 12V



I/O	
Storage/SSD	M.2 2280 (B Key) x 1 eMMC 32GB, up to 128GB (optional)
USB Port	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 2 (Internal option)
Serial Port	—
Audio	—
Expansion Slot	RS-232 x 1, RS-232/422/485 x 1 (Optional)
Certification	
Certification	CE, FCC

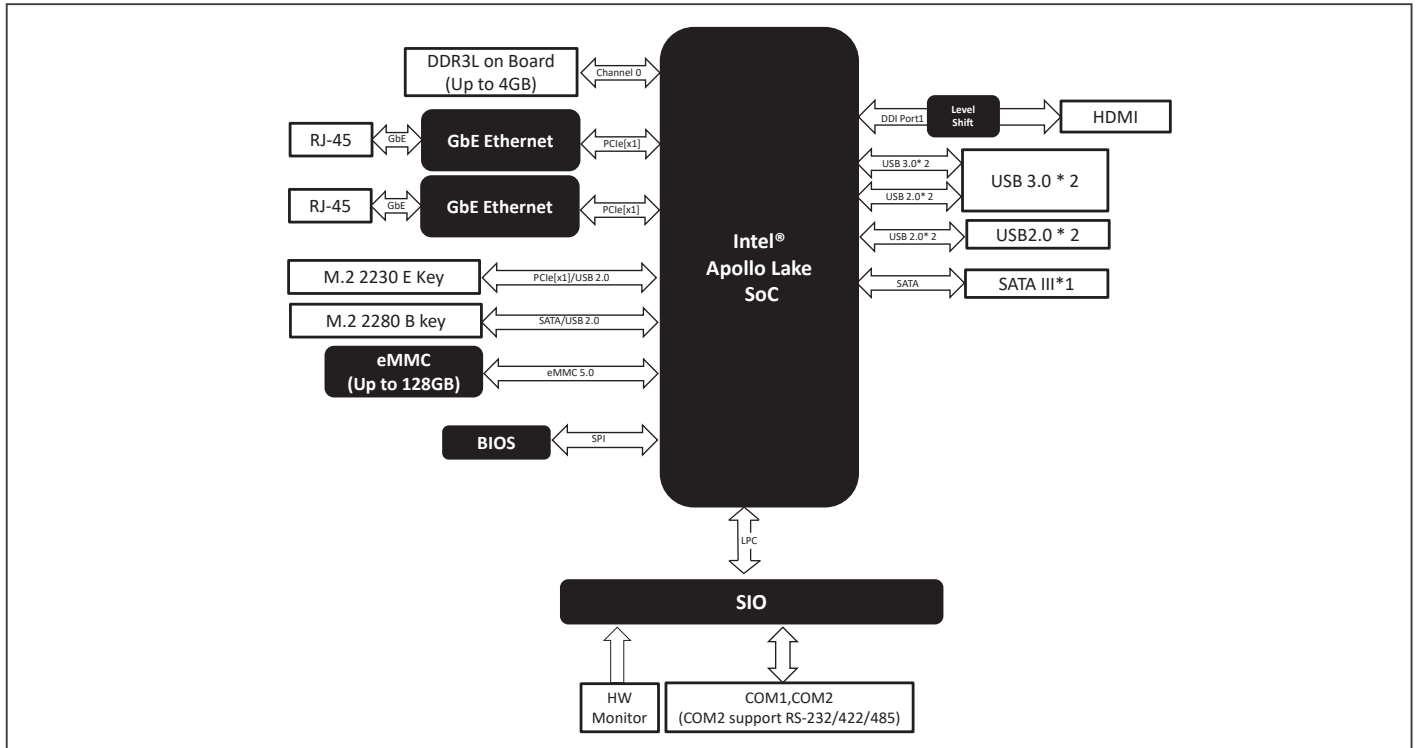
Packing List

- PICO-APL4-SEMI

Optional Accessories

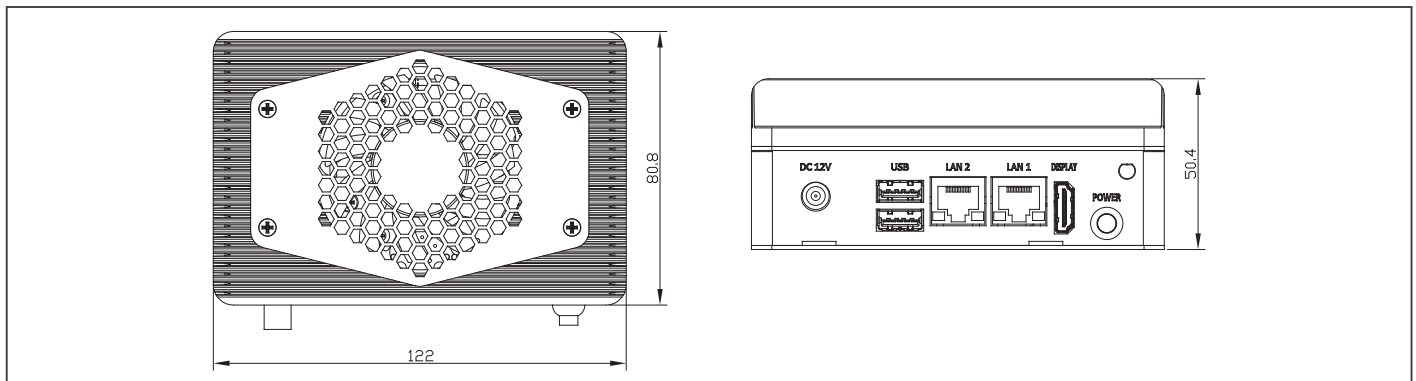
Part Number	Description	Qty.
125530040C	(TF)Power Adapter.12V.40W.FSP.FSP040-DHAN3	1
1702031802	Power Cord (US)	1
1702031803	Power Cord(European Type)	1
170203180E	Power Cord(Japan Type)	1
9761SEMI01	Din Rail Kit	1
9761SEMI00	Wall mount Kit	1
1701090122	COM Cable	2

Block Diagram



Dimension

Unit: mm



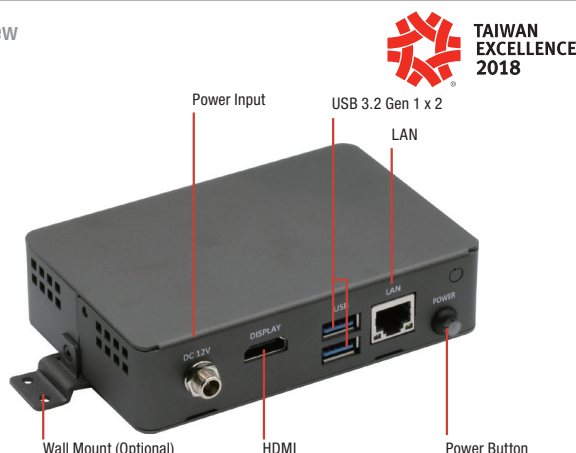
Ordering Information:

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	RS-232	RS-232/422/485	Expansion Slot	Power	Power Temp	Others
PICO-APL4-SEMI-A10-FS01	N3350	On board DDR3L 2GB	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	—
PICO-APL4-SEMI-A10-FS03	N4200	On board DDR3L 4GB	w/Cooler	HDMI x 1	SATAIII x 1 M.2 2280 (B Key) x 1 eMMC 32GB	GbE x 2	USB 3.2 Gen 1 x 2 (Rear)	—	—	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C	—

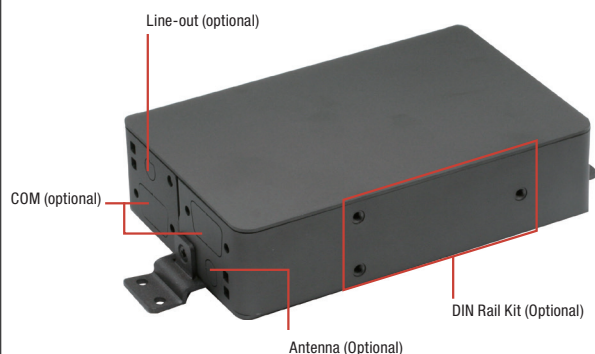
PICO-APL3-SEMI

Pico-ITX Embedded Barebone Kit with Intel® Atom™ Processor SoC

Front View



Rear View



With Heat Sink



Features

- 180g Extreme Light System, Easy To Adapter Everywhere
- Gigabit Ethernet for Networking Connection
- USB 3.2 Gen 1 Connectivity
- HDMI
- M.2 2280 (B) M.2 2230 (E) Slot for WiFi/3G/4G Bluetooth Module
- Fix Holes for Antenna, Wallmount, DIN-Rail Kit Optional
- Lockable 12V DC Input



Expansion Interface	M.2 2230 E key (For WIFI/BT Module)
Power Requirement	Normal: +12V
Power Supply Type	Lockable
Power Consumption	N4200 @ 4GB DRAM/eMMC 32GB, 12V @1.1A (Full Loading)
System Size	W/O heat sink: 4.8" x 3.15" x 1.18" (122 x 80 x 30 mm) W/ heat sink: 4.8" x 3.15" x 1.73" (122 x 80 x 44 mm)
Gross Weight	W/O heat sink: 0.4 lb (165g) W/ heat sink: 0.89 lb (407g)
Operation Temp.	32°F ~ 122°F (0°C ~ 50°C), 0.5 m/s airflow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	110,000
OS support	Windows 10 (64 bit)
Display	
Chipset	Intel® SoC
Video Output	HDMI 1.4
I/O	
Storage/SSD	M.2 2280 x 1 (B-Key) eMMC 32GB, up to 128GB (optional)
USB Port	USB 3.2 Gen 1 x 2 (Rear I/O) USB2.0 x 2 (Internal option)
Serial Port	Optional
Audio	Optional
Expansion Slot	RS-232 x 1, RS-232/422/485 x 1 (Optional)
Certification	
Certification	CE, FCC

Packing List

- PICO-APL3-SEMI

Specifications

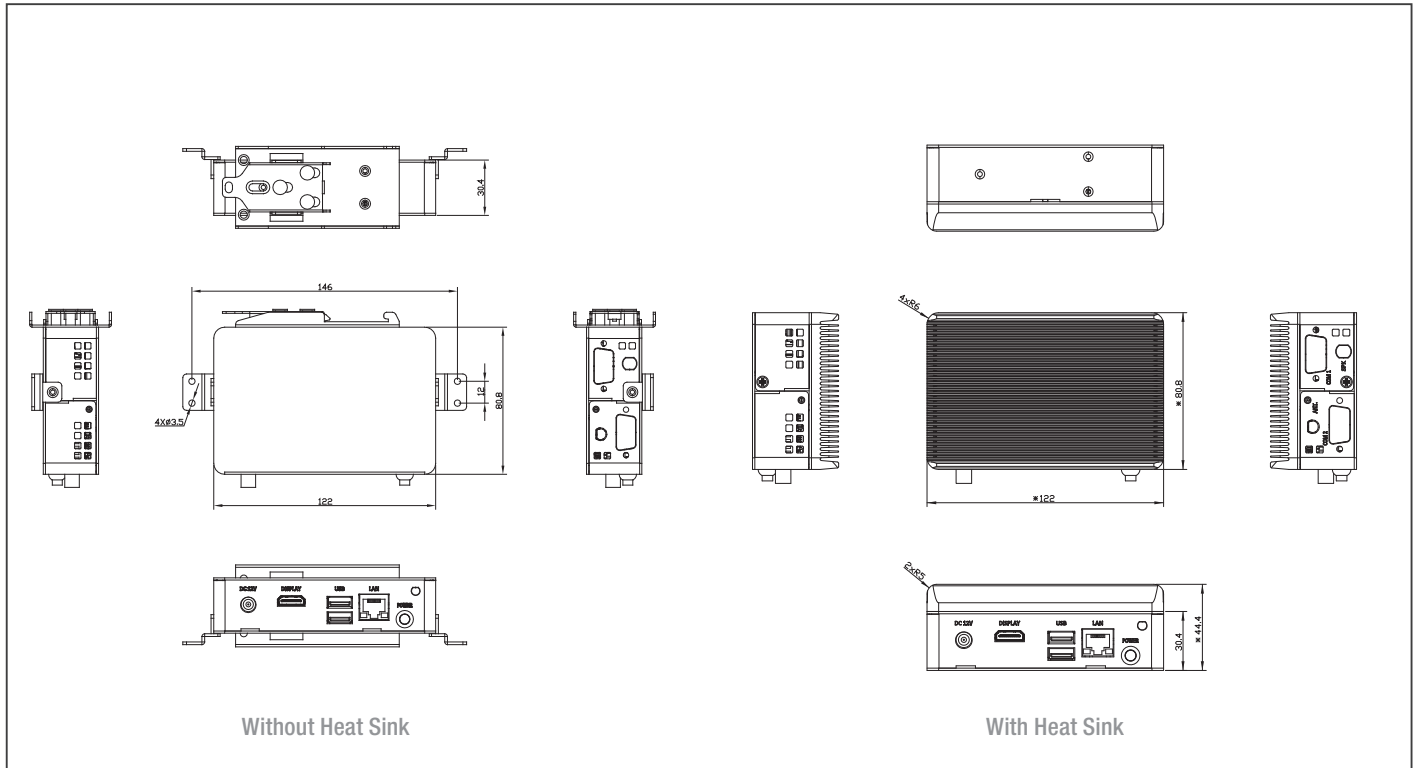
System	
Form Factor	Pico-ITX
Processor	Intel® Pentium® N4200 (4C, 1.1 GHz, up to 2.5 GHz, TDP 6W) Intel® Celeron® N3350 (2C, 1.1 GHz, up to 2.4 GHz, TDP 6W) *Wait for E3900 series in 2019 within ATRF according
System Memory	DDR3L, memory down, up to 4GB
Chipset	Intel® SoC
Ethernet	Realtek 8111G x 1 10/100/1000Mbps, RJ-45 x 1
BIOS	AMI BIOS
Wake on LAN	Yes
Watchdog Timer	255 Levels

Optional Accessories

Part Number	Description	Qty.
125530040C	(TF)Power Adapter.12V.40W.FSP.FSP040-DHAN3	1
1702031802	Power Cord (US Type)	1
1702031803	Power Cord (European Type)	1
170203180E	Power Cord (Japan Type)	1
1701090122	COM Port Cable	2
1703100084	Audio Line-Out	1
9761SEMI00	Wallmount Kit	1
9761SEMI01	DIN-Rail Kit	1

Dimension

Unit: mm



Installation Scenario

DIN-Rail Mount Illustration



Wall Mount Illustration



DIN Rail and Wall Mount Kit are optional parts.

Ordering Information

Part Number	CPU	Memory	Thermal	Display	Storage	LAN	USB	Expansion Slot	Power	Power Temp	Others
PICO-APL3-SEMI-A10-FS01	Celeron® N3350 (Dual Core)	On board DDR3L 2GB	W/ heat sink	HDMI x 1	SATAIII x 1, M.2 2280 (B Key) x 1, eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear)	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C @ 0.5 m/s airflow	COM (Optional) Line-Out (Optional)
PICO-APL3-SEMI-A10-FS02	Celeron® N3350 (Dual Core)	On board DDR3L 4GB	W/ heat sink	HDMI x 1	SATAIII x 1, M.2 2280 (B Key) x 1, eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear)	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C @ 0.5 m/s airflow	COM (Optional) Line-Out (Optional)
PICO-APL3-SEMI-A10-FS03	Pentium® N4200 (Quad Core)	On board DDR3L 4GB	W/ heat sink	HDMI x 1	SATAIII x 1, M.2 2280 (B Key) x 1, eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear)	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C @ 0.5 m/s airflow	COM (Optional) Line-Out (Optional)
PICO-APL3-SEMI-A10-FS04	Celeron® N3350 (Dual Core)	On board DDR3L 2GB	W/O heat sink	HDMI x 1	SATAIII x 1, M.2 2280 (B Key) x 1, eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear)	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C @ 0.5 m/s airflow	COM (Optional) Line-Out (Optional)
PICO-APL3-SEMI-A10-FS05	Celeron® N3350 (Dual Core)	On board DDR3L 4GB	W/O heat sink	HDMI x 1	SATAIII x 1, M.2 2280 (B Key) x 1, eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear)	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C @ 0.5 m/s airflow	COM (Optional) Line-Out (Optional)
PICO-APL3-SEMI-A10-FS06	Pentium® N4200 (Quad Core)	On board DDR3L 4GB	W/O heat sink	HDMI x 1	SATAIII x 1, M.2 2280 (B Key) x 1, eMMC 32GB	GbE x 1	USB 3.2 Gen 1 x 2 (Rear)	M.2 2230 (E Key) x 1	+12V (ATX)	0°C ~ 50°C @ 0.5 m/s airflow	COM (Optional) Line-Out (Optional)

Note: All specifications are subject to change without notice.

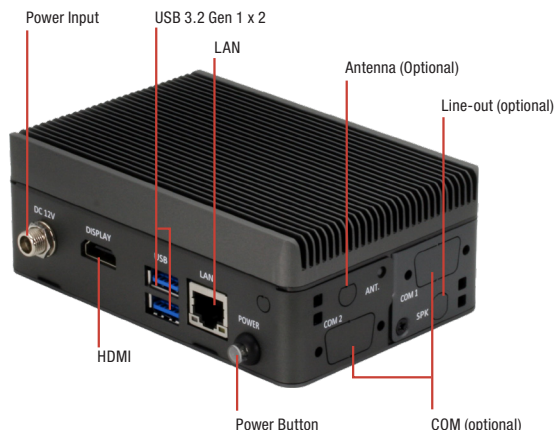
www.aaeon.com

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PICO-APL1-SEMI

Pico-ITX Embedded Barebone Kit with Intel® Atom™ Processor SoC

Front View



Rear View



Features

- 270g Extreme Light System, Easy To Adapter Everywhere
- Gigabit Ethernet for Networking Connection
- USB 3.2 Gen 1 Connectivity
- HDMI
- mSATA and miniCard Slot for WiFi/3G/4G Bluetooth Module
- Fix Holes for Antenna, Wallmount, DIN-Rail Kit Optional
- Lockable 12V DC Input



Display	
Chipset	Intel® SoC
Video Output	HDMI 1.4
I/O	
Storage/SSD	mSATA(Full size) x 1
USB Port	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 1 (Internal option)
Serial Port	Optional
Audio	—
Expansion Slot	RS-232 x 1, RS-232/422/485 x 1 (Optional)
Certification	
Certification	CE, FCC

Specifications

System	
Form Factor	Pico-ITX
Processor	Intel® Pentium® N4200 (4C, 1.1 GHz, up to 2.5 GHz, TDP 6W) (optional) Intel® Celeron® N3350 (2C, 1.1 GHz, up to 2.4 GHz, TDP 6W) Intel® Atom™ x7-E3950 (4C, 1.6GHz, up to 2GHz, TDP 12W) Intel® Atom™ x5-E3940 (4C, 1.6GHz, up to 1.8GHz, TDP 9.5W) Intel® Atom™ x5-E3930 (2C, 1.3GHz, up to 1.8GHz, TDP 6.5W)
System Memory	DDR3L SODIMM Slot x 1, Up to 8GB
Chipset	Intel® SoC
Ethernet	Intel® Gigabit Ethernet i211AT, 10/100/1000Base, RJ-45 x 1
BIOS	AMI BIOS
Wake on LAN	Yes
Watchdog Timer	255 Levels
Expansion Interface	miniCard (Half-Size) x 1
Power Requirement	Normal: +12V
Power Supply Type	Lockable
Power Consumption	N4200 @ 4GB DRAM/eMMC 32GB, 12V @1.1A (Full Loading)
System Size	4.8" x 3.15" x 1.73" (122 x 80 x 44 mm)
Gross Weight	0.59 lb (0.27 kg)
Operation Temp.	32°F ~ 122°F (0°C ~ 50°C), 0.5 m/s airflow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	170,000
OS support	Windows 10 (64 bit)

Packing List

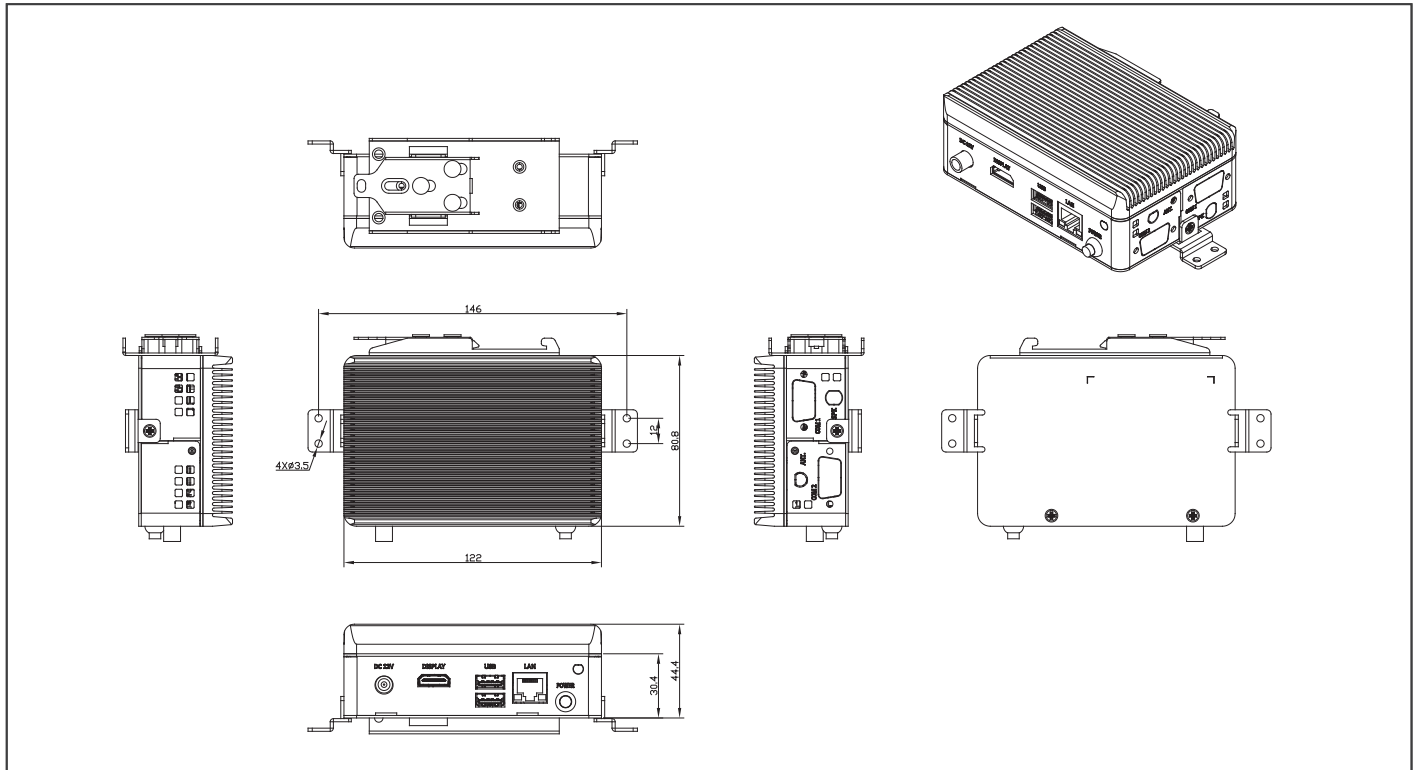
- PICO-APL1 SBC x 1
- SEMI Top Chassis x 1
- SEMI Bottom Chassis x 1
- SEMI Heatsink x 1
- SEMI power button cable x 1
- * Customer assembly required.

Optional Accessories

Part Number	Description	Qty.
125530040C	(TF)Power Adapter:12V.40W.FSP.FSP040-DHAN3	1
1702031802	Power Cord (US Type)	1
1702031803	Power Cord (European Type)	1
170203180E	Power Cord (Japan Type)	1
1703200052	COM x 2 + LINE_OUT	1
968C016G0V	SATA DOM 16GB (0°C ~ 70°C)	1
9761SEMI00	Wallmount Kit	1
9761SEMI01	DIN-Rail Mount Kit	1

Dimension

Unit: mm



Installation Scenario

DIN-Rail Mount Illustration



Wall Mount Illustration



Photos show assembled product, DIN Rail and Wall Mount kit are optional parts.

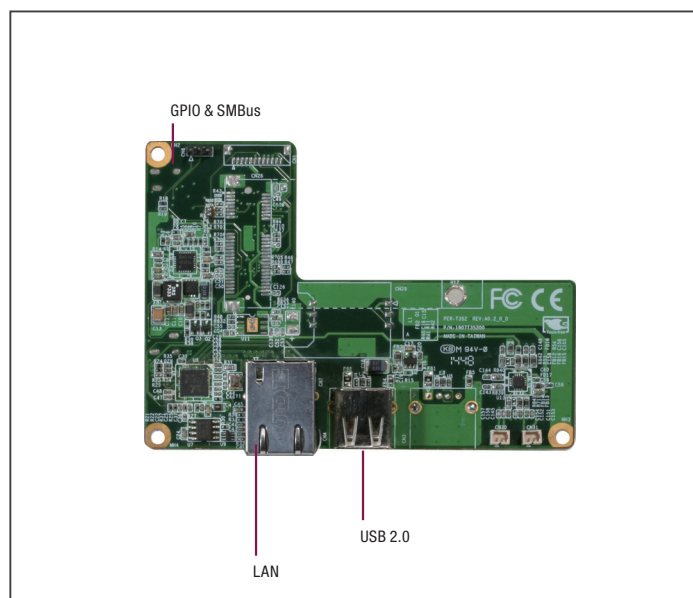
Ordering Information

Part Number	CPU	Memory	Fan/Fanless	Display	Storage	LAN	USB	Expansion Slot	Power	Temp	Others
PICO-APL1-SEMI-A10-FB02	N3350	DDR3L SODIMM Socket	Fanless	HDMI	SATA x 1, mSATA x 1 (Full-size)	GbE x 1	USB 3.2 Gen 1 x 2, USB2.0 x 1	miniCard x 1 (Half-Size)	12V DC Jack	0°C ~ 50°C @ 0.5 m/s airflow	COM Port optional

* This is a barebones kit, customer assembly is required.

BIO-ST01-L1U2

2.5" BIO Daughter Board with Gigabit LAN and USB



Features

- Gigabit Ethernet x 1, RJ-45 x 1
- USB 2.0 x 2
- Speaker Out with 2W Amp
- SMBus x 1
- LPC (Optional)



Specifications

System	
Form Factor	2.5" Board
BIO	80-Pin high speed board to board connector
Power Requirement	Power Supplied from MB via board to board connector
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	—
OS support	Windows 10 (64 bit)
I/O	
Ethernet	Realtek 8111E, 10/100/1000Base-TX, RJ-45 x 1
USB	USB 2.0 x 2 on rear I/O
Audio	Speaker Out with 2W Amp
Expansion Interface	SMBus x 1
PCIe	—
Serial Port	—
SIM	—
DIO	—

Packing List

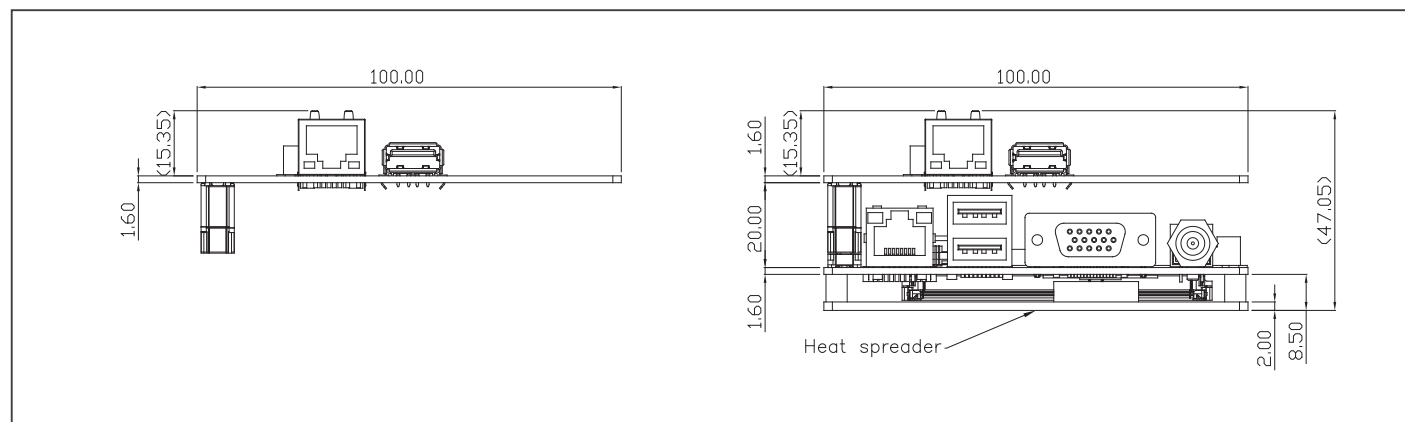
- Accessory Kit
- BIO-ST01-L1U2

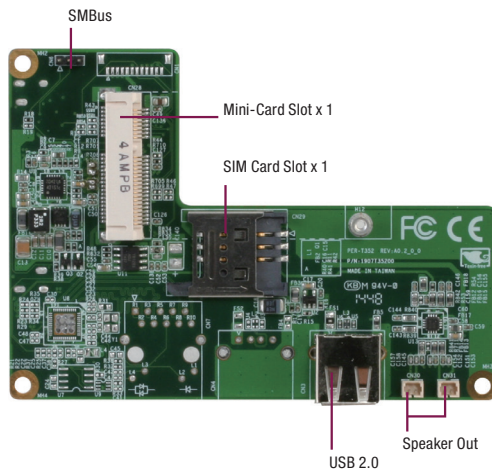
Ordering Information

P/N	LAN	USB	Expansion Slot	Temp.
BIO-ST01-L1U2-A11-0001	GbE x 1	USB 2.0 x 1	Speaker Out with 2W Amp, SMBus*1	0°C ~ 60°C

Dimension

Unit: mm





Features

- Mini-Card (Full Size) x 1, SIM slot x 1
- USB 2.0 x 1
- Speaker Out with 2W Amp
- SMBus x 1, GPIO x 1
- LPC (Optional)



Specifications

System	
Form Factor	2.5" Board
BIO	80-Pin high speed board to board connector
Power Requirement	Power Supplied from MB via board to board connector
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	—
OS support	Windows 10 (64 bit)
I/O	
Ethernet	—
USB	USB 2.0 x 1 on rear I/O
Audio	Speaker Out with 2W Amp
Expansion Interface	SMBus x 1
PCIe	Mini-Card x 1
Serial Port	—
SIM	SIM Slot x 1
DIO	—

Packing List

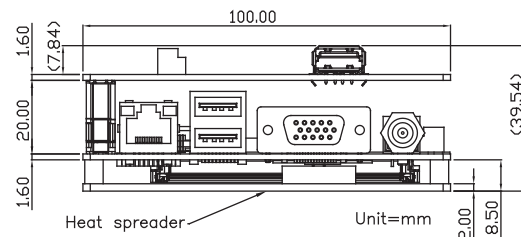
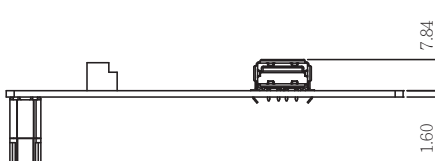
- Accessory kit
- BIO-ST01-M1U1

Ordering Information

P/N	USB	Expansion Slot	Power Temp.
BIO-ST01-M1U1-A11-0001	USB 2.0 x 1	Mini-Card x 1, SIM x 1, Speaker Out with 2W Amp. x 1, SMBus	0°C ~ 60°C

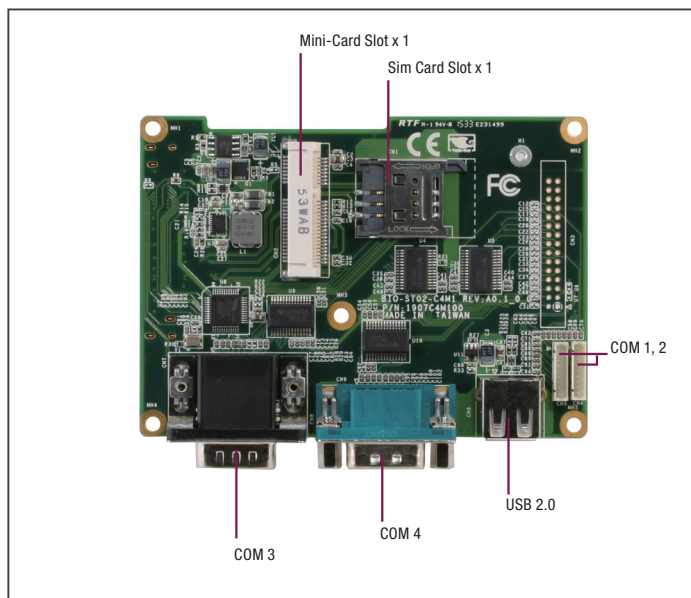
Dimension

Unit: mm



BIO-ST02-C4M1

2.5" BIO Daughter Board with COM x 4, Mini-Card, SIM and USB



Features

- RS-232 x 4
- Mini-Card (Full Size) x 1
- SIM slot x 1
- USB 2.0 x 1

- Mini-Card (Full Size): Completely compatible with PICO-BT01. PCIe x1 only for PICO-BSW/ PICO-APL1/ PICO-APL3/ PICO-APL4/ PICO-KBU4/ GENE-SKU6/ GENE-KBU6.



Specifications

System	
Form Factor	2.5" Board
BIO	80-Pin high speed Board to board connector
Power Requirement	Power Supplied from MB via board to board connector
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.2 Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	—
OS support	Windows 10 (64 bit)
I/O	
Ethernet	—
USB	USB 2.0 x 1 on rear I/O
Audio	—
Expansion Interface	—
PCIe	Mini-Card x 1 (full size), SIM x 1
Serial Port	COM1, COM2 RS-232 by Pin Header COM3, COM4 RS-232 on Rear I/O
SIM	—
DIO	—

Packing List

- Accessory Kit
- COM Port Cables
- BIO-ST02-C4M1

Ordering Information

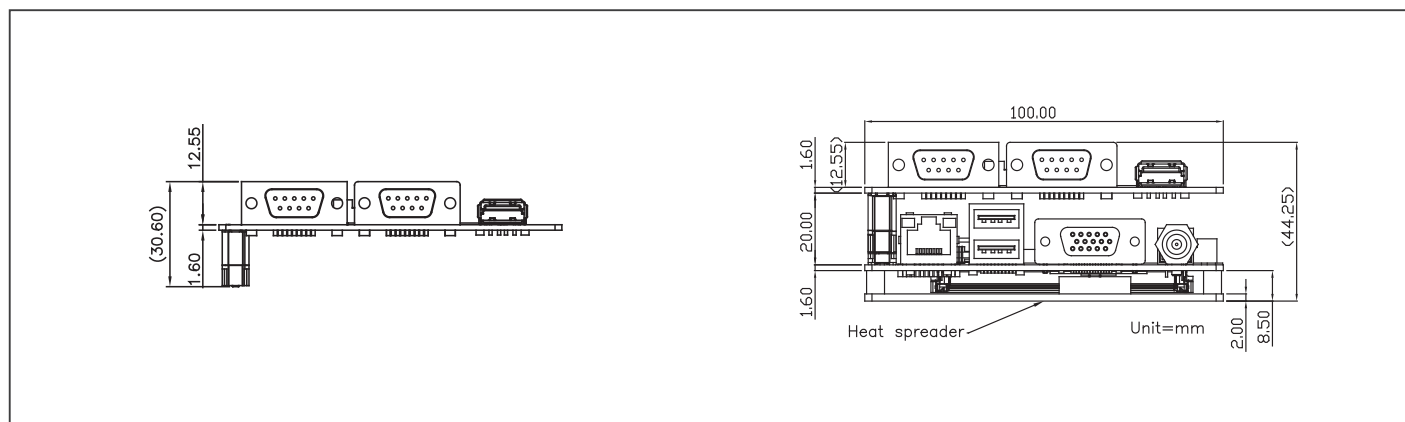
P/N	USB	RS-232	Expansion Slot	Temp.
BIO-ST02-C4M1-A10-01*	1	4	Mini-Card x 1, SIM x 1	0°C ~ 60°C

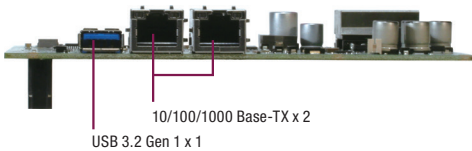
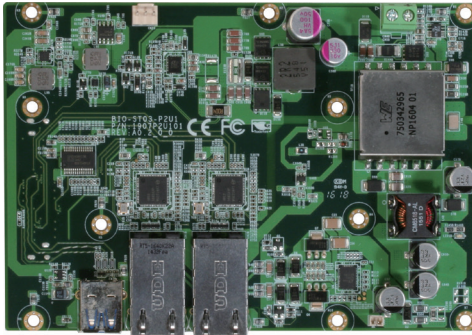
* Customized BIOS is required.

* For mini-card module expansion (via USB2.0 signal), suggest to use PICO-BT01 only.

Dimension

Unit: mm





Features

- Intel® i210, 10/100/1000Base-TX x 2 (Supports PoE 802.3af)
- USB 3.2 Gen 1 x 1
- 9~36V DC-in (+12V Only, Optional)
- Supports GENE-SKU6 and Pico-ITX Series BIO Daughter Board



Specifications

System	
Form Factor	3.5" Board
BIO	—
Power Requirement	12V or +9 ~ 36V input (external power supply)
Dimension	5.25" x 4" (146mm x 101.6mm)
Gross Weight	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC
OS support	Windows 10 (64 bit)
I/O	
Ethernet	Intel® i210/i211, 10/100/1000Base-TX x 2 (support PoE 802.3af)
USB	USB 3.2 Gen 1 x 1
Audio	—
Expansion Interface	—
PCIe	—
Serial Port	—
SIM	—
DIO	—

Packing List

- Accessory Kit
- BIO-ST03-P2U1

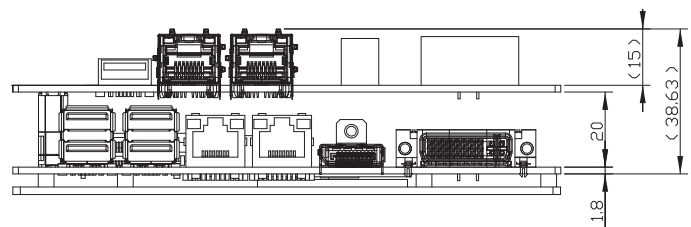
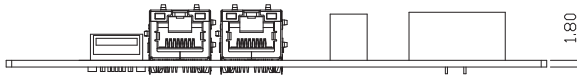
Ordering Information

P/N	LAN	USB	Power	Temp.
BIO-ST03-P2U1	PoE x 2	USB 3.2 Gen 1 x 1	9~36V	0°C ~ 60°C

* Customized BIOS is required.

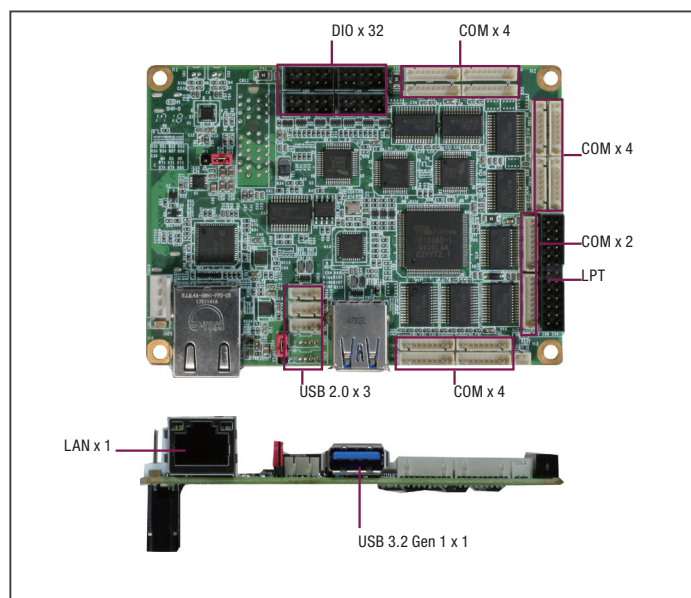
Dimension

Unit: mm



BIO-ST02-C14D32

2.5" BIO Daughter Board with 14 COM, 32bit DIO, LAN and USB 3.2 Gen 1



Features

- COM x 14, RS-232 only
- 32-bit DIO
- Intel® i211 Giga LAN x 1
- PCI-E [x1] Slot x 1 (Optional)
- USB 3.2 Gen 1 & USB 2.0 x 3
- Speaker w/2W Amp.
- LPT x 1



Specifications

System	
Form Factor	2.5" Board
BIO	80-Pin high speed board to board connector
Power Requirement	Power Supplied from MB via board to board connector
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC
OS support	Windows 10 (64 bit)
I/O	
Ethernet	Intel® i211, 10/100/1000Base-TX x 1
USB	USB 3.2 Gen 1 x 1 & USB 2.0 x 3 or USB 2.0 x5(for PICO-BT01)
Audio	Speaker output with 2W Amp.
Expansion Interface	PCIe [x1] x1 (optional), LPT x1
PCIe	—
Serial Port	COM x14, RS-232 by Pin Header
SIM	—
DIO	32 bits

Packing List

- 9697BI0000
Accessory Kit (w/ Copper Stud and Screws)
- BIO-ST02-C14D32

Ordering Information

Part Number	COM	DIO	LAN	PCIe	USB	LPT	Temp.
BIO-ST02-C14D32-A10-0001	RS-232 x14	x32 bit	GbE x 1	PCIe[x1]	USB 3.2 Gen 1 x 1 USB 2.0 x 3	x1	0°C ~ 60°C

* Customized BIOS is required.

Optional Accessories

Part Number	Description	Qty.
1701090150	COM Cable 15cm	14
1700050207	USB cable 20cm	3 or 5

Dimension

Unit: mm

