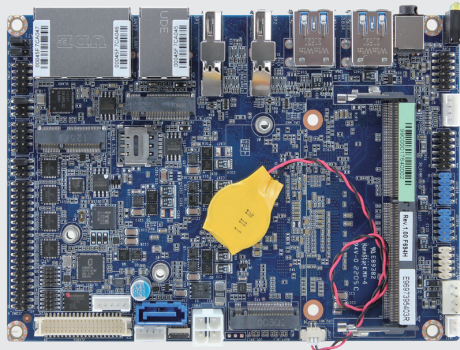


ECM-TGU

11th Gen Intel® Core™ SoC i7/i5/i3 & Celeron BGA Processor
3.5" Micro Module



Features

- Bottom Layer Soldered Processor
- Single 260-pin SO-DIMM DRAM Socket, Max, Up to 32GB DDR4 3200MTs(non-ECC Supported)
- Four Display, 2 x DP++, 1 x 2CH LVDS, 1 x eDP
- Expansion Slot, M.2 Key-B, M.2 Key-E, M.2 Key-M
- Three Gigabit Ethernet, 1 x 2.5GbE, 2 x 1GbE
- DC in +12V ~ +24V



HDMI



DP++



DDR5
SO-DIMM



USB 3.2



RS232/422/485

Specifications

System Information

Processor	11th Gen, Intel® Core™ SoC i7/i5/i3 & Celeron® BGA Processor Intel® Core™ i7-1185G7E, i7-1185G7E (up to 4.4GHz, quad-core, 12M Cache, TDP: 28/15W) Intel® Core™ i5-1145G7E, i5-1145G7E (up to 4.1GHz, quad-core, 8M Cache, TDP: 28/15W) Intel® Core™ i3-1115G4E, i3-1115G4E (up to 3.9GHz, dual-core, 6M Cache, TDP: 28/15W) Intel® Celeron® 6305E (up to 1.8GHz, dual-core, 4M Cache, TDP: 15W)
System Memory	1 x 260-pin DDR4 3200MHz SO-DIMM Socket, Supports Up to 32GB Max. (non ECC only)
I/O Chipset	EC ITE IT8528E
Watchdog Timer	H/W Reset: 1Sec. ~ 65535Sec./Min. and 1 Sec. or 1Min./Step
BIOS	AMI BIOS, 256Mbit SPI Flash ROM
H/W Status Monitor	CPU & System Temperature Monitoring Voltages Monitoring
TPM	Onboard nuvoTon NPCT754AADYX Supports TPM 2.0
Board	3.5"

Expansion

Expansion	1 x M.2 Type E 2230 supports WiFi module (with PCIe x1 & USB 2.0 Signal) 1 x M.2 Type B 3042/2242 (with PCIe x1, SATA and USB 2.0 Signal, with 1 x SIM card slot) Standard Package with 52 to 42 Bracket + screw set ; Supports 4G, no 5G (no USB3.0 Signal). 1 x M.2 Type M supports 2260/2242 (with 1 x PCIe Gen4 x4 Signal). Standard Package with 60 to 42 Bracket + screw set
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Storage

Storage	1 x M.2 (Type B, 2242) 1 x M.2 (Type M, 2260/2242) 1 x SATA III
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Display

Graphic Chipset	Intel® 12th Generation CPU Integrated
Spec. & Resolution	DP++ Max resolution 4096 x 2160@60Hz LVDS Max resolution 1920 x 1080 Dual channel 18/24-bits eDP1.3 Max resolution 4096 x 2160@60Hz
Multiple Display	Four Display
LVDS	1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS (Chrontel CH7511B-BFI eDP to LVDS)

Audio

Audio Codec	Realtek ALC888S HD Audio Decoding Controller
Audio Interface	Line-in, Mic-in, Line-out
Audio Amplifier	2 x 2W 4Ω Amplifier

Ethernet

LAN Chipset	3 x Intel® I226LM for Standard Temperature/ Intel® I226IT for Extend Temperature
Ethernet Interface	10/100/1000/2.5G Base-Tx GbE compatible
LAN Port	3 x RJ-45

Power Requirement

Power Mode	AT/ATX (Default Setting: AT)
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Software Support

OS	Windows 10, Linux
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Certification

Certification Information	CE, FCC Class, RoHS Compliant
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I/O

USB	4 x USB 3.2 Gen2x1 4 x USB 2.0
COM Port	4 x RS232 2 x RS-232/422/485
SATA	1 x SATA III
DIO	1 x 8-bit GPIO
MIO	1 x LPC 1 x SPI 1 x SIM Card Slot

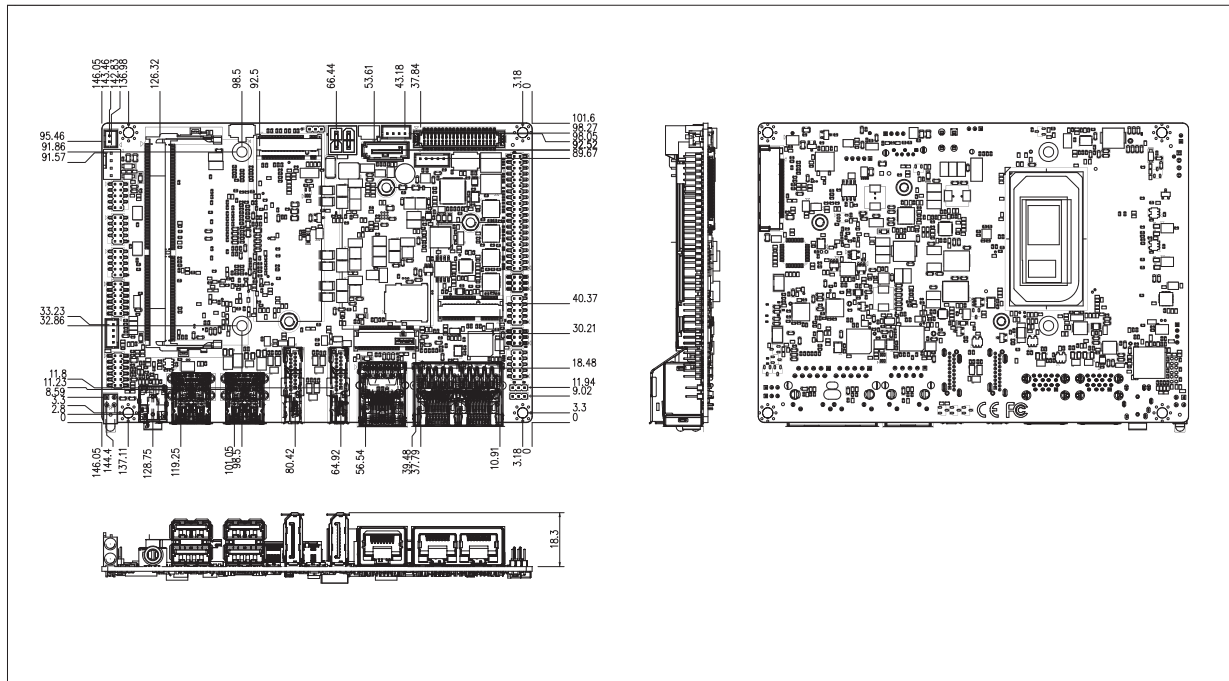
Mechanical & Environmental

Operating Temp.	Standard Temperature: 0°C ~ 60°C (32~140°F) with 0.5m/s Air Flow Wide Temperature: -20°C ~ 60°C (-4~140°F) with 0.5m/s Air Flow for Wide Temp CPU SKU
Storage Temp.	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.44lbs (0.2kg)
Power Requirement	DC in +12V ~ +24V
Dimension (L x W)	5.7" x 4" (146mm x 101mm)

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3.5" Micro Module

Mechanical Drawing



Ordering Information

P/N	Processor	Chipset	LAN	USB	COM	PCIe Slot	Power Input	Temp.
ECM-TGU-85-B1R	Intel® Core™ i7-1185G7E Processor	NA	3	8	6	0	+12-24V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-TGU-45-B1R	Intel® Core™ i5-1145G7E Processor	NA	3	8	6	0	+12-24V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-TGU-15-B1R	Intel® Core™ i3-1115G4E Processor	NA	3	8	6	0	+12-24V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-TGU-85W-B1R	Intel® Core™ i7-1185GRE Processor	NA	3	8	6	0	+12-24V DC	-20°C ~ 60°C (-4~140°F)
ECM-TGU-45W-B1R	Intel® Core™ i5-1145GRE Processor	NA	3	8	6	0	+12-24V DC	-20°C ~ 60°C (-4~140°F)
ECM-TGU-15W-B1R	Intel® Core™ i3-1115GRE Processor	NA	3	8	6	0	+12-24V DC	-20°C ~ 60°C (-4~140°F)
ECM-TGU-85W-B1-1R	Intel® Core™ i7-1185GRE Processor	NA	3	8	6	0	+12-24V DC	-20°C ~ 60°C (-4~140°F)
ECM-TGU-45W-B1-1R	Intel® Core™ i5-1145GRE Processor	NA	3	8	6	0	+12-24V DC	-20°C ~ 60°C (-4~140°F)
ECM-TGU-15W-B1-1R	Intel® Core™ i3-1115GRE Processor	NA	3	8	6	0	+12-24V DC	-20°C ~ 60°C (-4~140°F)
ECM-TGU-6305-B1R	Intel® Celeron® 6305E Processor	NA	3	8	6	0	+12-24V DC	0°C ~ 60°C (32°F ~ 140°F)

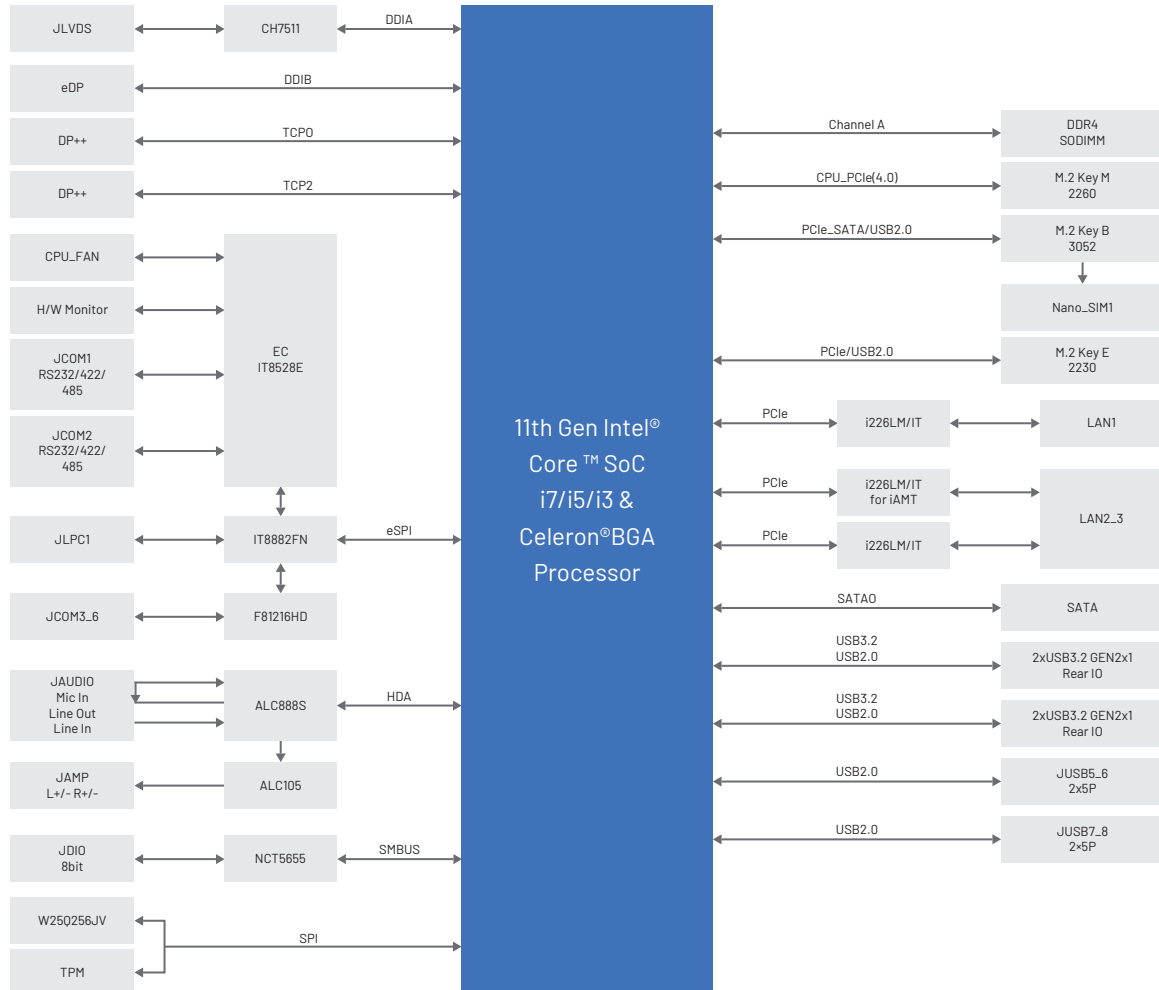
Packing List

Item	P/N	Quantity
Serial ATA cable (7-pin, standard)	-	1
Wire SATA power cable (15-pin, 4P/2.0mm)	-	1
Flat cable 9P(M)-PHD 10P/2.0mm)	-	1
CPU Heatsink	-	1
3M foam (VHB-4622 10mm*20mm*1.1mm)	-	1
M.2 Module mounting bracket screw set	-	1

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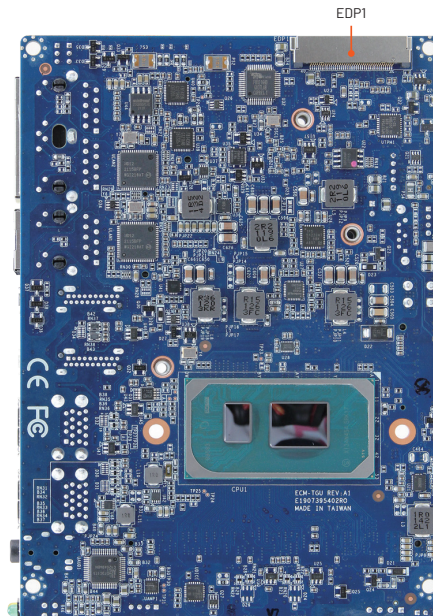
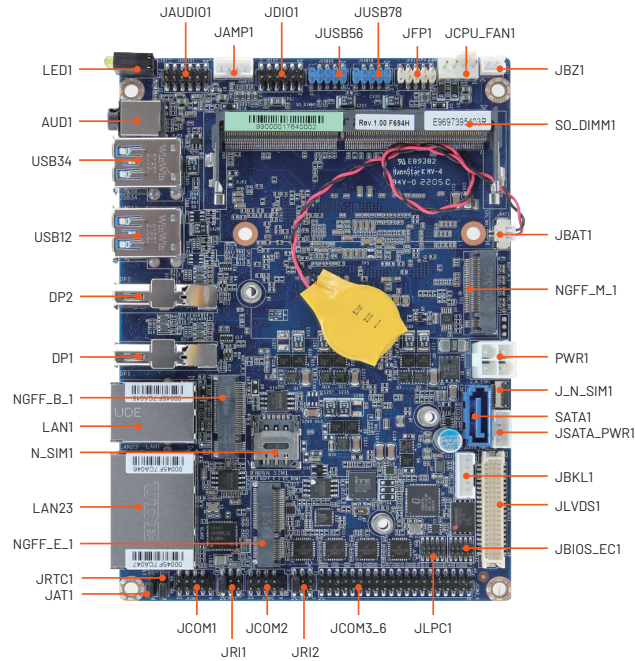
Block Diagram



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I/O Overview



Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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