



## ECM-TGU

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

- > 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
- > Wide Temperature -20°C ~ 60°C sku supported
- > DC-Input, +12~+24VDC

#### + Spec

##### System Information

<b>Processor</b>	Onboard 11th Gen. Intel® Core™ SoC i7/i5/i3 & Celeron® BGA Processor Intel® Core™ i7-1185G7E, i7-1185GRE (up to 4.4GHz, quad-core, 12M Cache, TDP: 28/15/12W) Intel® Core™ i5-1145G7E, i5-1145GRE (up to 4.1GHz, quad-core, 8M Cache, TDP: 28/15/12W) Intel® Core™ i3-1115G4E, i3-1115GRE (up to 3.9GHz, dual-core, 6M Cache, TDP: 28/15/12W) Intel® Celeron® 6305E (up to 1.8GHz, dual-core, 4M Cache, TDP: 15W)
<b>System Memory</b>	Single 260-pin DDR4 SODIMM Socket, Supports Up to 32GB DDR4 3200MTs SDRAM (non ECC only)
<b>I/O Chipset</b>	ITE IT8528E
<b>BIOS Information</b>	AMI BIOS, 256Mbit SPI Flash ROM
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step
<b>H/W Status Monitor</b>	CPU & system temperature monitoring Voltages monitoring
<b>TPM</b>	TPM 2.0 (Onboard NuvoTon NPCT754AADYX)

##### Expansion

<b>Expansion</b>	1 x M.2 Key E 2230 support WiFi module (with PCIe x1 & USB 2.0 Signal) 1 x M.2 Key B 3042/2242 (with PCIe x1, SATA and USB2.0 signal, with 1 x SIM card slot) standard package with 52 to 42 bracket + screw set ; Support 4G, no 5G (no USB3.0 signal). 1 x M.2 Key M support 2260/2242 (with 1 x PCIe Gen4 x4 signal), standard package with 60 to 42 bracket + screw set
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##### Storage

<b>Storage</b>	1 x M.2 (Key-B, 2242) 1 x SATA III
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##### I/O

<b>USB Port</b>	4 x USB 3.2 Gen 2x1 4 x USB 2.0
<b>COM Port</b>	2 x RS-232/422/485 4 x RS232
<b>SATA</b>	1 x SATA III
<b>DIO</b>	1 x 2 x 6 pin, pitch 2.00mm connector for GPIO: 8 bits & +3.3S Level
<b>Other</b>	3 x LAN

##### Display

<b>Graphic Chipset</b>	Intel® Tiger Lake UP3 SoC Processor integrated Gen12 graphics
<b>Spec. &amp; Resolution</b>	DP++ Max resolution 4096x2160@60Hz LVDS Max resolution 1920 x 1080 Dual channel 18/24-bits eDP1.3 Max resolution 4096x2160@60Hz
<b>Multiple Display</b>	Four Display
<b>LVDS</b>	1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS (Chrontel CH7511B-BFI eDP to LVDS)

##### Audio

<b>Audio Codec</b>	92HD73C Tempo
<b>Audio Interface</b>	Mic-In, Line-In, Line-Out
<b>Audio Amplifier</b>	3W Amplifier

##### Certifications

<b>Certification Information</b>	CE FCC Class B
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##### Ethernet

<b>LAN Chipset</b>	Intel® I225LM, I210AT for standard temperature Intel® I225IT, I210IT for wide temperature
<b>Ethernet Interface</b>	1 x 10/100/1000/2.5G Base-Tx GbE compatible 2 x 10/100/1000 Base-Tx GbE compatible
<b>LAN Port</b>	3 x RJ-45

##### Mechanical & Environmental

<b>Operating Temperature</b>	Standard Temperature: 0°C ~ 60°C (-4~140°F) with 0.5m/s air flow Wide Temperature: -20°C ~ 60°C(32~140°F) with 0.5m/s air flow for Wide Temp CPU SKU
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<b>Storage Temperature</b>	-40°C ~ 75°C (-40°F ~ 167°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Weight</b>	0.44lbs (0.2kg)

<b>Vibration Test</b>	1.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/Axis, 3 Axis
<b>Shock Test</b>	10G, IEC 60068-2-27, Half Sine, 11ms, Z Axis
<b>Drop Test</b>	ISTA 2A, IEC-60068-2-32 Test : Ed, 1 Corner, 3 Edges, 6 Faces
<b>Power Requirement</b>	DC in +12V ~ +24V
<b>ACPI</b>	Single power ATX Support S0,S3, S4, S5 ACPI 5.0 Compliant
<b>Power Mode</b>	AT/ATX (Default Setting: AT)
<b>Dimension (L x W)</b>	5.7" x 4" (146mm x 101mm)

**Software Support**

<b>OS Information</b>	Win 10 Linux
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**Ordering Information**

<b>Ordering Information</b>	<p>ECM-TGU-85-A1R 3.5" W/71185G7E/1SATA/6COM/8USB/15W/A1</p> <p>ECM-TGU-45-A1R 3.5" W/51145G7E/1SATA/6COM/8USB/15W/A1</p> <p>ECM-TGU-15-A1R 3.5" W/31115G4E/1SATA/6COM/8USB/15W/A1</p> <p>ECM-TGU-85W-A1R 3.5" W/71185GRE/1SATA/6COM/8USB/15W/A1</p> <p>ECM-TGU-45W-A1R 3.5" W/51145GRE/1SATA/6COM/8USB/15W/A1</p> <p>ECM-TGU-15W-A1R 3.5" W/31115GRE/1SATA/6COM/8USB/15W/A1</p> <p>ECM-TGU-85W-A1-1R 3.5" W/71185GRE/1SATA/6COM/8USB/28W/A1</p> <p>ECM-TGU-45W-A1-1R 3.5" W/51145GRE/1SATA/6COM/8USB/28W/A1</p> <p>ECM-TGU-15W-A1-1R 3.5" W/31115GRE/1SATA/6COM/8USB/28W/A1</p> <p>ECM-TGU-6305-A1R 3.5" W/6305E/1SATA/6COM/8USB/15W/A1</p>
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