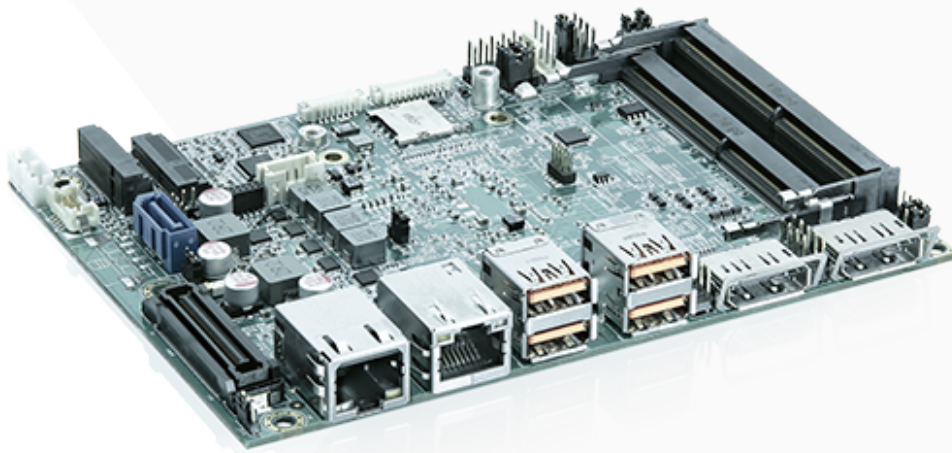


# 3.5"-SBC-TGL



## 3.5" Single Board Computer with 11th Gen Intel® Core™ U-Series Processors

- ▶ Native AI inferencing capabilities to accelerate AI workloads
- ▶ Time Coordinated Computing / Time Sensitive Networking for real-time control
- ▶ Additional Rear I/O expansion via board-to-board connector
- ▶ Industrial-grade operating temperature range for extreme environmental conditions
- ▶ Hardware-based protection against malware and sophisticated cyberattacks

## 3.5" Single Board Computer with 11th Gen Intel® Core™ U-Series Processors

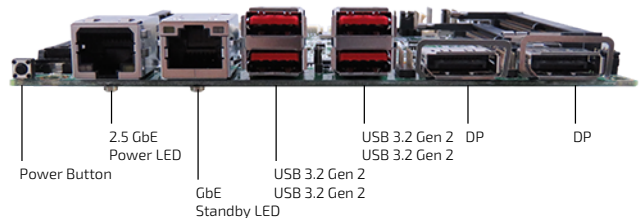
3.5"-SBC-TGL is a 3.5" single board computer powered by 11th Gen Intel® Core™ U-Series and Celeron® 6000 Series processors integrated with Intel's next-generation Iris® X<sup>e</sup> Graphics. It delivers massive improvements in processing, graphics and AI performance, ideal for AI, deep learning and similar applications that demand high-speed processing, computer vision and low-latency determin-

istic computing.

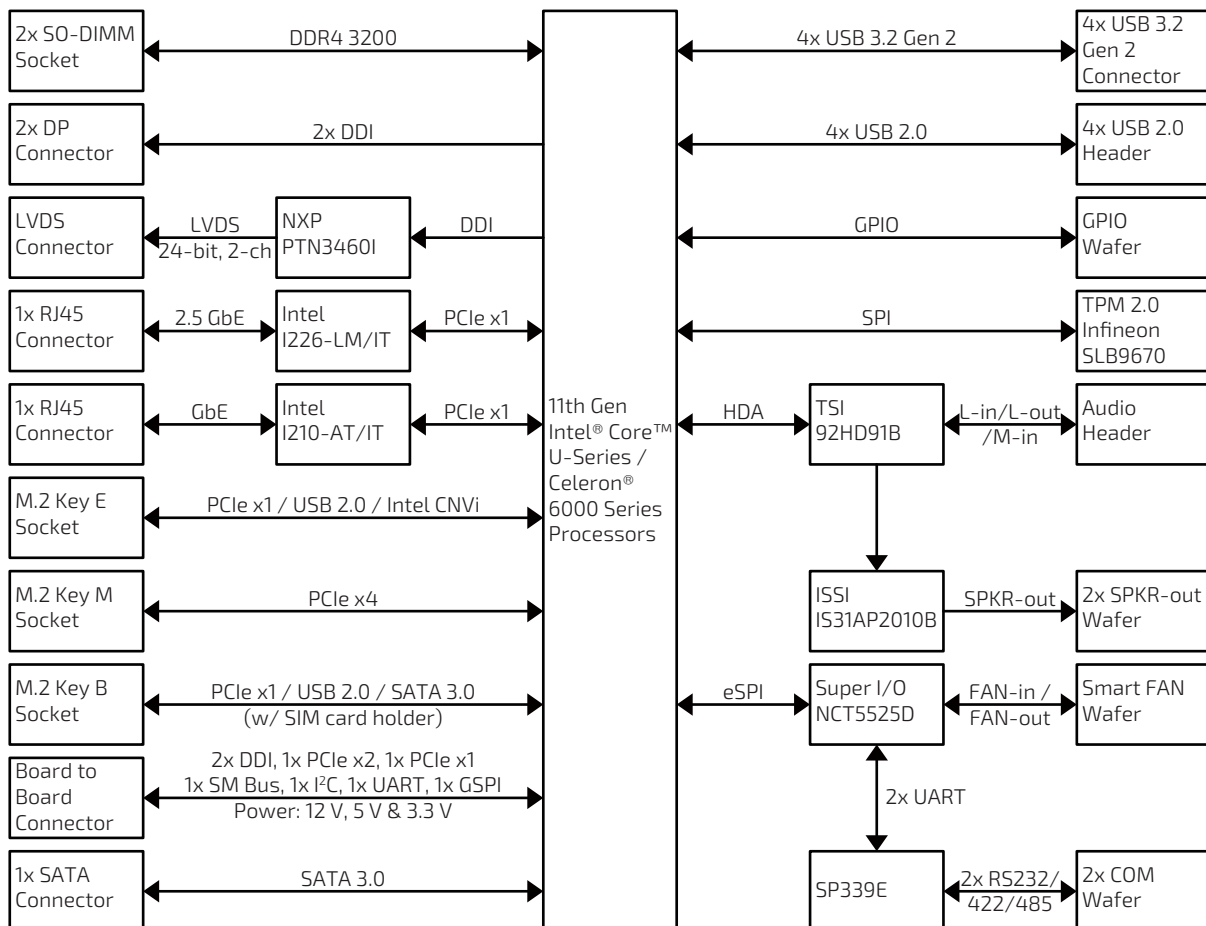
The board supports up to two 8K video streams at 60 fps. Via the board-to-board connector, it can support four channels of DP signal outputs to drive four independent displays running 4K video at 60 fps.

- 11th Gen Intel® Core™ U-Series processors
- Intel® Celeron® 6000 Series processors
- 2x DDR4 SO-DIMM memory socket
- 2x DP, 1x LVDS for video output
- 1x 2.5 GbE LAN, 1x GbE LAN for Ethernet
- 4x USB 3.2 Gen 2, 4x USB 2.0 for USB device connection
- 2x RS232/422/485 for serial device connection
- 8x DIO for device / signal control
- 1x SATA 3.0 for storage device
- 1x M.2 Key B for SSD, WWAN or other expansion
- 1x M.2 Key E for WLAN, Bluetooth or other expansion
- 1x M.2 Key M for SSD

- 1x Board-to-board connector for additional rear I/Os
- TPM 2.0 support
- Extreme temperature model available: -40 °C ~ 85 °C



## Block Diagram



SYSTEM	PROCESSOR	Intel® Core™ i7-1185G7E / Intel® Core™ i7-1185GRE (Quad Core, 12M Cache, 1.8 / 4.4 GHz, FCBGA1449, 12 W ← 15 W → 28 W TDP) Intel® Core™ i5-1145G7E / Intel® Core™ i5-1145GRE (Quad Core, 8M Cache, 1.5 / 4.1 GHz, FCBGA1449, 12 W ← 15 W → 28 W TDP) Intel® Core™ i3-1115G4E (Dual Core, 6M Cache, 2.2 / 3.9 GHz, FCBGA1449, 12 W ← 15 W → 28 W TDP) Intel® Celeron® 6305E (Dual Core, 4M Cache, 1.8 GHz, FCBGA1449, 15 W TDP)
	MEMORY	2x DDR4 3200 SO-DIMM up to 64 GByte
VIDEO	GRAPHICS	Intel® Iris® X <sup>e</sup> Graphics (Core™ i7 / i5) Intel® UHD Graphics (Core™ i3 / Celeron®)
	DISPLAY INTERFACE	1x LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz) 2x DP (7680 x 4320 @ 60 Hz*, on rear)
	MULTIPLE DISPLAY	Quadruple Display (more display I/Os supported via extended B2B connector)
AUDIO	AUDIO CODEC AUDIO INTERFACE	TSI 92HD91B 1x Speaker-out (Stereo, 3 W) 1x Line-in (by header) 1x Line-out (by header) 1x Mic-in (by header)
NETWORK CONNECTION	ETHERNET	1x 2.5 GbE LAN (RJ45 on rear, Intel® I226-LM/IT, TSN support**) 1x GbE LAN (RJ45 on rear, Intel® I210-AT/IT)
PERIPHERAL CONNECTION	USB	4x USB 3.2 Gen 2 (Type A on rear) 4x USB 2.0 (by header)
	SERIAL PORT OTHER I/Os	2x RS232/422/485 (by header) 8x DIO (by header)
STORAGE & EXPANSION	SATA M.2	1x SATA 3.0 1x M.2 Key B (Type 2242 / 3042 / 2280, w/ PCIe x1 / USB 2.0 / SATA 3.0) 1x M.2 Key M (Type 2280, w/ PCIe x4) 1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0, Intel® CNVi support)
	SIM CARD HOLDER BOARD-TO-BOARD CONNECTOR	1x SIM Card Holder (Micro type, connected to M.2 Key B) 2x DDI (1x eDP / DP support, 1x DP support) 1x PCIe x2 1x PCIe x1 1x SM Bus 1x I <sup>2</sup> C 1x UART 1x GSPI
POWER	INPUT VOLTAGE CONNECTOR	DC 12 V 1x4-pin pitch 3.0 mm Wafer
FIRMWARE	BIOS WATCHDOG H/W MONITOR REAL TIME CLOCK REMOTE MANAGEMENT SECURITY	AMI uEFI BIOS w/ 256 Mb SPI Flash Programmable WDT to generate system reset event Voltages, Temperatures Processor integrated RTC vPro support (Core™ i7 / i5) TPM 2.0 Support (Infineon SLB 9670)
SYSTEM CONTROL & MONITORING	FP HEADER	1x Header for Reset Button, HDD LED & External Speaker 1x Header for Power Button, Power LED & SM Bus 1x Header for M.2 Key B activity LED
	BUTTON, SWITCH & INDICATOR	1x Header for M.2 Key E activity LED 1x Standby LED (Yellow, on rear) 1x Power LED (Green, on rear) 1x Power Button (on rear)
COOLING	COOLING METHOD	1x Wafer for Smart Fan
SOFTWARE	OS SUPPORT	Windows 10, Linux
MECHANICAL	DIMENSION (L x W)	ECX (146 mm x 105 mm / 5.75" x 4.13")
ENVIRONMENTAL	OPERATING TEMPERATURE	0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard) -20 °C ~ 70 °C / -4 °F ~ 158 °F (Extended) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme)
	STORAGE TEMPERATURE	-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extended) -55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme)
	HUMIDITY	0 % ~ 95 %
COMPLIANCE	EMC & SAFETY	CE Class B, FCC Class B

\* 2x 8K support for models with Core™ i7 / i5 processors, 1x 8K support for those with Core™ i3 / Celeron® processors

\*\* TSN support only for models with Core™ GRE Series processors

# Ordering Information

ARTICLE	ORDERING CODE*		DESCRIPTION
	EMEA / AMERICA		
3.5"-SBC-TGL-0-i5-1145G7E	43017-0000-15-4		Intel® Core™ i5-1145G7E, w/ B2B connector, w/ vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-1-i3-1115G4E	43017-0000-22-2		Intel® Core™ i3-1115G4E, w/ B2B connector, w/o vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-2-i7-1185G7E	43017-0000-18-4		Intel® Core™ i7-1185G7E, w/ B2B connector, w/ vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-3-6305E	43017-0000-18-2		Intel® Celeron® 6305E, w/ B2B connector, w/o vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-4-i7-1185GRE-XT	43017-0000-18-4XT		Intel® Core™ i7-1185GRE, w/ B2B connector, w/ vPro, Operating temperature: -40 °C ~ 85 °C
3.5"-SBC-TGL-5-i5-1145GRE-XT	43017-0000-15-4XT		Intel® Core™ i5-1145GRE, w/ B2B connector, w/ vPro, Operating temperature: -40 °C ~ 85 °C
3.5"-SBC-TGL-6-i5-1145G7E	43017-0000-15-4wob		Intel® Core™ i5-1145G7E, w/o B2B connector, w/ vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-7-i3-1115G4E	43017-0000-22-2wob		Intel® Core™ i3-1115G4E, w/o B2B connector, w/o vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-8-i7-1185G7E	43017-0000-18-4wob		Intel® Core™ i7-1185G7E, w/o B2B connector, w/ vPro, Operating temperature: 0 °C ~ 60 °C
3.5"-SBC-TGL-9-6305E	43017-0000-18-2wob		Intel® Celeron® 6305E, w/o B2B connector, w/o vPro, Operating temperature: 0 °C ~ 60 °C

(\* For ordering code for APAC, contact your local account manager.)

## Accessories

NO.	ARTICLE	ORDERING CODE		DESCRIPTION
		EMEA / AMERICA	APAC	
1	DC IN CABLE*	1064-2433	0C5020000004220L	2.5 mm DC Jack to H-300F-XX 1x4P 3.0 pitch, L = 300 mm
2	SATA CABLE*	1064-2431	0C5020000004240L	1x7-pin connector with lock, pitch = 1.27 mm, L = 460 mm
3	SATA POWER CABLE	1064-2430	0C5020000004230L	PH 2.0 HSG 1x4P 2.0 mm pitch to SATA 1x15P Pitch: 1.27 mm, L = 460 mm
4	COM PORT CABLE	1064-2427	0C5020000005130L	10-pin pitch = 1.25 mm to DB9 connector, L = 350 mm
5	DIO CABLE	1065-3137	0C5020000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 pitch, L = 200 mm
6	USB CABLE (2 PORT)	1069-7893	0C5020003000010L	2x5-pin pitch 2.0 mm to 2x USB 2.0 Type A female w/ bracket, L = 27 cm
7	AUDIO CABLE	1070-1245	0C5020000005840L	2x5-pin pitch 1.25 mm to 3x 3.5 mm ear phone jack, L = 400 mm
8	ADAPTER	1069-3055	0I0902G5T60A101L	Input: AC 90 V ~ 264 V, output: DC 12 V @ 5 A Max. 60 W
9	COOLER	1067-5535	0H05XX000002270L	Al. heatsink w/ thermal pad, 4-wire PWM controlled fan, Max. 15 W TDP
10	I/O CARD (3.5"-eIO-GPA-0)	1069-6159	B35EGPA0-001001T	2x DP, 2x 2.5 GbE, 1x UART, 1x I2C, 1x SMBus, 1x GSPI, 1x DC In, 0 °C ~ 60 °C
11	I/O CARD (3.5"-eIO-GPA-1)	1069-6922	B35EGPA0-011001T	2x DP, 2x 2.5 GbE, 1x UART, 1x I2C, 1x SMBus, 1x GSPI, 0 °C ~ 60 °C
12	I/O CARD (3.5"-eIO-GPA-2-XT)	TBD	B35EGPAI-021000T	2x DP, 2x 2.5 GbE, 1x UART, 1x I2C, 1x SMBus, 1x GSPI, 1x DC In, -40 ~ 85 °C

(\*: standard supplied accessories for single-piece box packing)

## Starter Kits

ARTICLE	ORDERING CODE		DESCRIPTION
	EMEA / AMERICA	APAC	
STARTER KITS FOR 3.5"-SBC-TGL	1069-6976	0ZHK35SBCTGL0001	Including above accessories table No. 1 - 9

## Global Headquarters

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