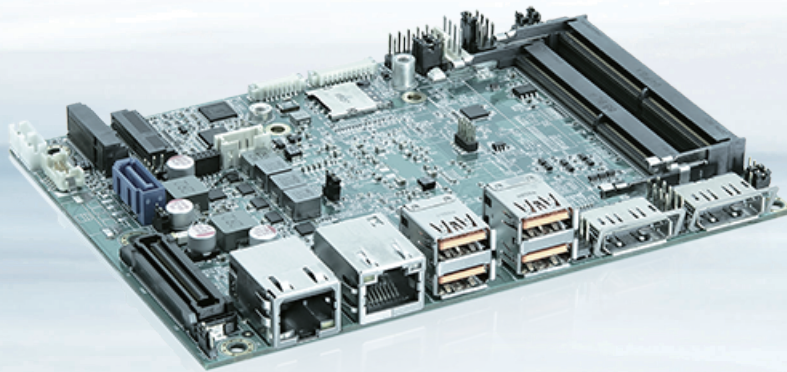


3.5"-SBC-TGL

IDEAL FOR IOT / AIOT APPLICATIONS



3.5" SINGLE BOARD COMPUTER WITH 11TH GENERATION INTEL® CORE™ U-SERIES PROCESSORS

- ▶ Native AI inferencing capabilities
- ▶ 8K UHD video output support
- ▶ Time Coordinated Computing / Time Sensitive Networking for real-time control
- ▶ Various expansion capabilities: next-gen M.2 sockets & board-to-board connector
- ▶ Hardware-based protection against malware and sophisticated cyberattacks

3.5"-SBC-TGL

3.5" SINGLE BOARD COMPUTER WITH 11TH GENERATION INTEL® CORE™ U-SERIES PROCESSORS

3.5"-SBC-TGL is a 3.5" single board computer powered by 11th Generation Intel® Core™ U-Series and Celeron® 6000 Series processors (codenamed Tiger Lake UP3) integrated with Intel's next-generation Iris® Xe 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 deterministic computing.

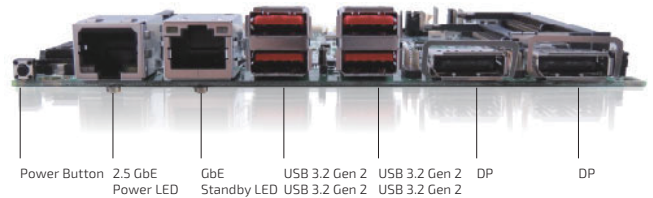
The board supports up to two 8K video streams at 60 fps. Via the

extended B2B connector, it can support four channels of DP signal outputs to drive four independent displays running 4K video at 60 fps.

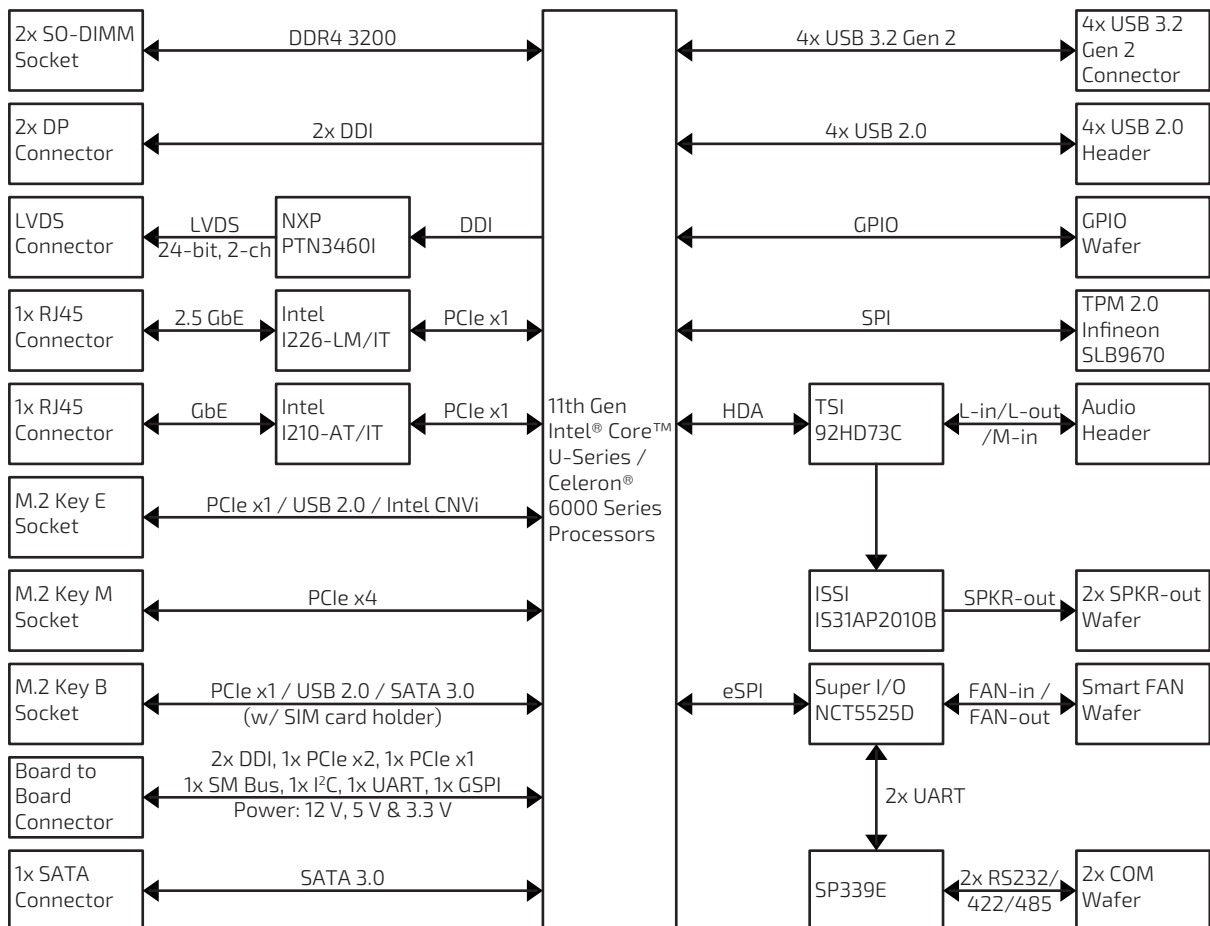
In addition, the board supports configurable TDP done via BIOS settings, which provides flexibility to integrators to design a system according to the cooling techniques they use and the application scenarios they target.

▶ PRODUCT HIGHLIGHTS

- ▶ 11th Gen Intel® Core™ U-Series processors (up to 28 W TDP)
- ▶ Intel® Celeron® 6000 Series processors (15 W TDP)
- ▶ 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, 1x M.2 Key M, 1x M.2 Key E for SSD, WLAN & WWAN
- ▶ 1x Board-to-board connector for DDI, PCIe, SM Bus, I²C, UART, GSPI
- ▶ TPM 2.0 support
- ▶ Extreme temperature model available: -40 °C ~ 85 °C



▶ BLOCK DIAGRAM



TECHNICAL INFORMATION

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® Xe Graphics (Core™ i7 / i5)
	DISPLAY INTERFACE	Intel® UHD Graphics (Core™ i3 / Celeron®)
	MULTIPLE DISPLAY	1x LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz) 2x DP (7680 x 4320 @ 60 Hz, on rear)* Quadruple Display (more display I/Os supported via extended B2B connector)
AUDIO	AUDIO CODEC	TSI 92HD73C
	AUDIO INTERFACE	2x Speaker-out (Right & Left, 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) 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	2x RS232/422/485 (by header)
	OTHER I/Os	8x DIO (by header)
STORAGE & EXPANSION	SATA	1x SATA 3.0
	M.2	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	1x SIM Card Holder (Micro type, connected to M.2 Key B)
	BOARD-TO-BOARD CONNECTOR	2x DDI (1x eDP / DP support, 1x DP support) 1x PCIe x2 1x PCIe x1 1x SM Bus 1x I ² C 1x UART 1x GSPI
POWER	INPUT VOLTAGE	DC 12 V
	CONNECTOR	1x4-pin pitch 3.0 mm Wafer
FIRMWARE	BIOS	AMI uEFI BIOS w/ 256 Mb SPI Flash
	WATCHDOG	Programmable WDT to generate system reset event
	H/W MONITOR	Voltages, Temperatures
	REAL TIME CLOCK	Processor integrated RTC
	REMOTE MANAGEMENT	vPro support (Core™ i7 / i5)
	SECURITY	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 1x Header for M.2 Key E activity LED
	BUTTON, SWITCH & INDICATOR	1x Standby LED (Yellow, on rear) 1x Power LED (Green, on rear) 1x Power Button (on rear)
COOLING	FAN	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 Core™ i7 / i5, 1x 8K support for Core™ i3 / Celeron®)

ORDERING INFORMATION

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

ACCESSORIES

ARTICLE	PART NO.	DESCRIPTION
DC IN CABLE	0C5020000004220L	2.5 mm DC Jack w/ 2 mm nut, 0.5 mm washer to H-300F-XX 1x4P 3.0 pitch, L = 300 mm
SATA CABLE	0C5020000004240L	1x7-pin connector with lock, pitch = 1.27 mm, L = 460 mm
SATA POWER CABLE*	0C5020000004230L	PH 2.0 HSG 1x4P 2.0 mm pitch to SATA 1x15P Pitch: 1.27 mm, L = 460 mm
COM PORT CABLE*	0C5020000005130L	10-pin pitch = 1.25 mm to DB9 connector, L = 350 mm
DIO CABLE*	0C5020000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 pitch, L = 200 mm
USB CABLE (2 PORT)*	0C5020003000010L	2x5-pin pitch 2.0 mm to 2x USB Type A 4P Female w/ bracket, L = 270 mm
AUDIO CABLE*	0C5020000005840L	HRS DF13-10DS-1.25C 1.25 pitch to PJ-2509CTPC-5-L (3.5 phone jack) x3, L = 400 mm
COOLER*	0H05XX000002270L	Aluminum heatsink w/ thermal pad, 4-wire PWM controlled fan, Max. 15 W TDP
I/O BOARD (3.5"-eIO-GPA-0)*	0W0035EGPA00A100	2x DP, 2x 2.5 GbE, 1x UART, 1x I ² C, 1x SMBus, 1x GSPI, 1x DC In Term Blk, 0-60°C Op. Temp.
I/O BOARD (3.5"-eIO-GPA-1)*	0W0035EGPA10A100	2x DP, 2x 2.5 GbE, 1x UART, 1x I ² C, 1x SMBus, 1x GSPI, 0 °C ~ 60 °C Op. Temp.

(*: Optional)

GLOBAL HEADQUARTERS

Kontron Europe GmbH

Gutenbergstraße 2
 85737 Ismaning, Germany
 Tel.: + 49 821 4086-0
 Fax: + 49 821 4086-111
 info@kontron.com
www.kontron.com