

3.5"-SBC-RPH



3.5" Single Board Computer with 13th Gen Intel® Core™ U-Series Processors

- 1x DisplayPort + 1x HDMI 2.0 on rear I/O panel for maximum application possibilities
- 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
- Wide power input voltage range for more application scenarios

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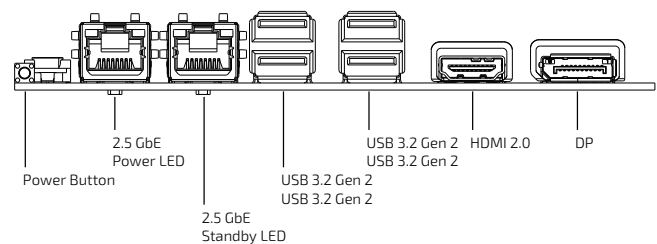
3.5"-SBC-RPH is a 3.5" single board computer powered by 13th Gen Intel® Core™ U-Series processors. Besides great performance improvement in graphics, it features 2.5 GbE with TSN (Time Sensitive Networking) capability and enhanced TPM 2.0 security / encryption support, ideal for a variety of IoT applications, such as

industrial automation, retail, smart city and healthcare.

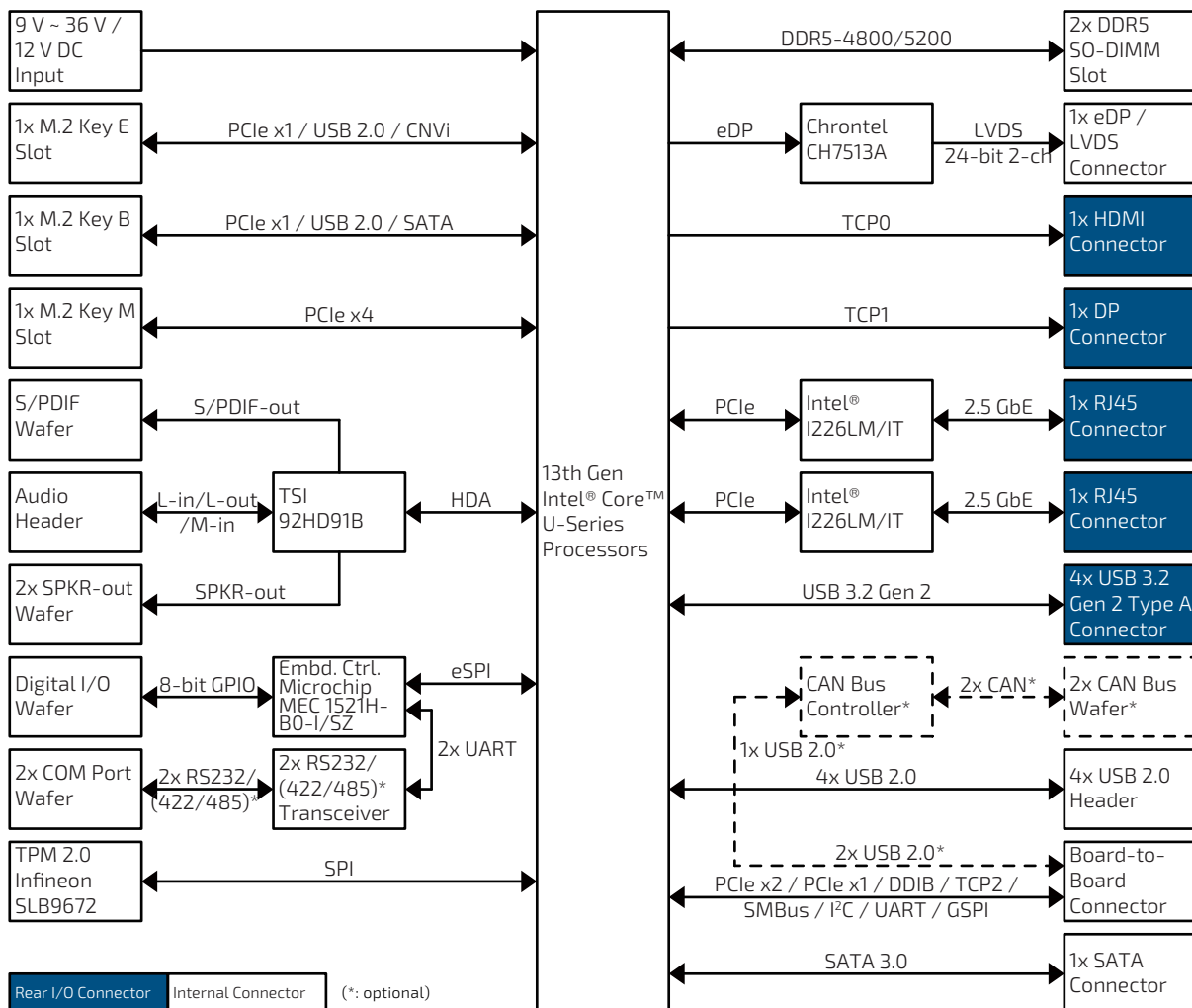
The board supports an extended board-to-board connector, providing additional I/O port expansion to fulfill possible application requirements.

- 13th Gen Intel® Core™ U-Series processors (TDP up to 28 W)
- 2x DDR5 SO-DIMM memory socket
- 1x DP, 1x HDMI 2.0, 1x eDP / LVDS for video output
- 2x 2.5 GbE LAN for Ethernet
- 4x USB 3.2 Gen 2, 4x USB 2.0 for USB device connection
- 2x RS232 or 2x RS232/422/485 for serial device connection
- 4x DI, 4x DO 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 real I/Os

- TPM 2.0 support
- Wide power input voltage range available: DC 9 V ~ 36 V
- Extreme temperature model available: -40 °C ~ 85 °C



Block Diagram



SYSTEM	PROCESSOR	Intel® Core™ i7-1365UE / i7-1365URE (10C, 12M, 1.7 / 4.9 GHz, FCBGA1744, 12 W ← 15 W → 28 W TDP) Intel® Core™ i5-1345UE / i5-1345URE (10C, 12M, 1.4 / 4.6 GHz, FCBGA1744, 12 W ← 15 W → 28 W TDP) Intel® Core™ i3-1315UE / i3-1315URE (6C, 10M, 1.2 / 4.5 GHz, FCBGA1744, 12 W ← 15 W → 28 W TDP) Intel® U300E (5C, 8M, 1.1 / 4.3 GHz, FCBGA1744, 12 W ← 15 W → 28 W TDP) 2x DDR5 5200 SO-DIMM up to 96 GByte
	MEMORY	
VIDEO	GRAPHICS DISPLAY INTERFACE	Intel® Iris® X ^e Graphics 1x eDP (4096 x 2304 @ 120 Hz) / LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz) 1x DP (7680 x 4320 @ 60 Hz, on rear) 1x HDMI 2.0 (4096 x 2304 @ 60 Hz, on rear)
	MULTIPLE DISPLAY	Quadruple Display (more display I/Os supported via board-to-board connector)
AUDIO	AUDIO CODEC AUDIO INTERFACE	TSI 92HD91B 1x Speaker-out (Stereo, 3 W, by header) 1x Line-in (by header) 1x Line-out (by header) 1x Mic-in (by header) 1x S/PDIF Out (by header)
NETWORK CONNECTION	ETHERNET	2x 2.5 GbE LAN (RJ45 on rear, Intel® I226-LM/IT, TSN support*)
PERIPHERAL CONNECTION	USB	4x USB 3.2 Gen 2 (Type A on rear) 4x USB 2.0 (by header, -1 in case of 2x CAN Bus, -2 in case of 2x USB 2.0 in B2B)
	SERIAL PORT OTHER I/Os	2x RS232 (def.) / RS232/422/485 (opt.) (by header, Tx/Rx only for RS232 signal) 4x DI (by header) 4x DO (by header) 2x CAN Bus (optional, by header, trade off 1x USB 2.0 header)
STORAGE & EXPANSION	SATA M.2	1x SATA 3.0 1x M.2 Key B (Type 2242/3042/3052/2280, w/ PCIe x1 / USB 2.0 / SATA / UIM) 1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0 / CNVi) 1x M.2 Key M (Type 2280, w/ PCIe x4)
	SIM CARD HOLDER BOARD-TO-BOARD CONNECTOR	1x SIM Card Holder (by header) 1x DDI 1x TCP 1x PCIe x2 1x PCIe x1 1x SM Bus 1x I ² C 1x UART 1x GSPI 2x USB 2.0 (optional, trade off 2x USB 2.0 header)
POWER	INPUT VOLTAGE	DC 9 V ~ 36 V (Configuration 1) DC 12 V (Configuration 2)
	CONNECTOR	1x4-pin pitch 3.0 mm Wafer
FIRMWARE	BIOS WATCHDOG H/W MONITOR REAL TIME CLOCK SECURITY	AMI uEFI BIOS w/ 256 Mb SPI Flash Programmable WDT to generate system reset event Voltages, Temperatures Processor integrated RTC TPM 2.0 Support (Infineon SLB 9672)
SYSTEM CONTROL & MONITORING	FP HEADER	1x Header for Reset Button, HDD LED & External Speaker
	BUTTON, SWITCH & INDICATOR	1x Header for Power Button, Power LED & SM Bus 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 11, 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) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme)
	STORAGE TEMPERATURE	-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme)
	HUMIDITY	0 % ~ 95 %
COMPLIANCE	EMC SAFETY	CE, FCC, ICES, UKCA (level class TBD) UR (UL Recognized TBD)

* TSN support only for models with Core™ URE Series processors

ARTICLE	ORDERING CODE*		DESCRIPTION		
	EMEA / AMERICA	APAC	PROCESSOR	OP. TEMP.	DC IN
3.5"-SBC-RPH-0-i7-1365URE-XT	TBD		Intel® Core™ i7-1365URE	-40 °C ~ 85 °C	9 V ~ 36 V
3.5"-SBC-RPH-1-i5-1345URE-XT	TBD		Intel® Core™ i5-1345URE	-40 °C ~ 85 °C	9 V ~ 36 V
3.5"-SBC-RPH-2-i7-1365UE	TBD		Intel® Core™ i7-1365UE	0 °C ~ 60 °C	9 V ~ 36 V
3.5"-SBC-RPH-3-i5-1345UE	TBD		Intel® Core™ i5-1345UE	0 °C ~ 60 °C	9 V ~ 36 V
3.5"-SBC-RPH-4-i3-1315UE	TBD		Intel® Core™ i3-1315UE	0 °C ~ 60 °C	9 V ~ 36 V
3.5"-SBC-RPH-5-U300E	TBD		Intel® U300E	0 °C ~ 60 °C	9 V ~ 36 V

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

Accessories

NO.	ARTICLE	ORDERING CODE		DESCRIPTION
		EMEA / AMERICA	APAC	
1	DC IN CABLE*	TBD	0C5020000001920L	1x4P 3.0 pitch to EHDP-2P 5.08 pitch + JST 110 1x2P, L = 230 mm
2	SATA CABLE	1064-2431	0C5020000004240L	1x7P connector with lock, pitch = 1.27 mm, L = 460 mm
3	SATA POWER CABLE	1064-2430	0C5020000004230L	1x4P 2.0 mm pitch to SATA 1x15P 1.27 mm pitch, L = 460 mm
4	COM PORT CABLE	1064-2427	0C5020000005130L	1x10P 1.25 mm pitch to DB9 connector, L = 350 mm
5	DIO CABLE	1065-3137	0C5020000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 mm pitch, L = 200 mm
6	USB CABLE (2 PORT)	1069-7893	0C5020003000010L	2x5P 2.0 mm pitch to 2x USB 2.0 Type A female w/ bracket, L = 27 cm
7	AUDIO CABLE	1070-1245	0C5020000005840L	2x5P 1.25 mm pitch to 3x 3.5 mm ear phone jack, L = 400 mm
8	ADAPTER	1074-9217	0I09025PU151A02L	Input: AC 100 V ~ 240 V, output: DC 24 V @ 6.25 A Max. 150 W
9	SCREW COPPER PILLAR KIT	TBD	OZHK35SBC0000002	2x 39.6 mm pillar, 6x 19 mm pillar, 5x 5 mm screw
10	COOLER	1067-5535	0H05XX000002270L	Al heatsink w/ pad, 4-wire PWM controlled fan, Max. 15 W TDP
11	HEATSINK	TBD	OZHK35SRPL0000001	Al +Cu heatsink w/ pad, 4x M3x6L screw
12	I/O CARD (3.5"-eIO-GPA-0)	1069-6159	B35EGPA0-001001T	2x DP, 2x 2.5 GbE, 1x UART, 1x I ² C, 1x SMBus, 1x GSPI, 1x DC In, 0 ~ 60 °C
13	I/O CARD (3.5"-eIO-GPA-1)	1069-6922	B35EGPA0-011001T	2x DP, 2x 2.5 GbE, 1x UART, 1x I ² C, 1x SMBus, 1x GSPI, 0 ~ 60 °C
14	I/O CARD (3.5"-eIO-GPA-2-XT)	1073-9682	B35EGPAI-021000T	2x DP, 2x 2.5 GbE, 1x UART, 1x I ² C, 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 KIT FOR 3.5"-SBC-RPL (ACTIVE)	1074-8826	OZHK35SRPL0000003	Including above accessories table No. 1 ~ 8 & 10
STARTER KIT FOR 3.5"-SBC-RPL (PASSIVE)	TBD	OZHK35SRPL0000002	Including above accessories table No. 1 ~ 8, 9 & 11

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