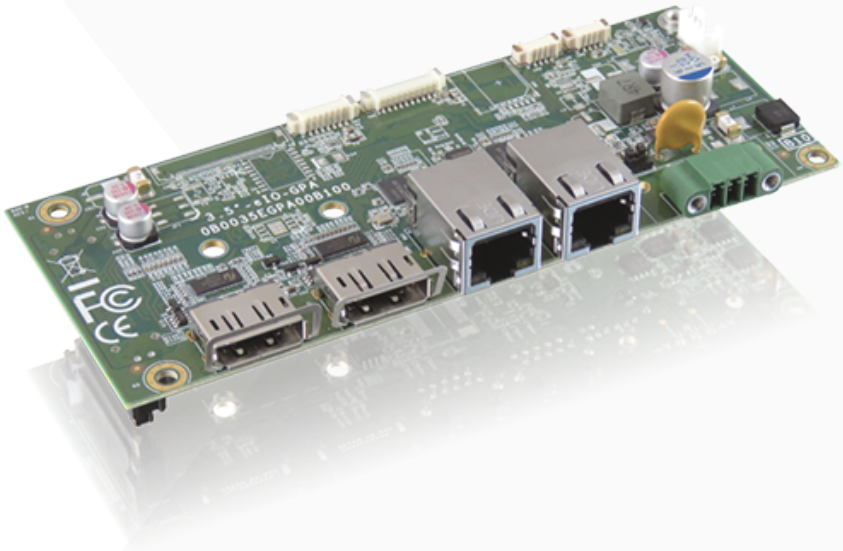
3.5”-eIO-GPA



3.5" Extended I/O Board
For General Purpose Applications

- Electronically & mechanically compatible with Kontron 3.5"-SBC Series products
- Additional rear I/O connectors stacked onto 3.5"-SBC Series products
- Additional internal connections & expansion slots stacked onto 3.5"-SBC Series products
- Industrial-grade operating temperature range support
- Extended voltage input range support

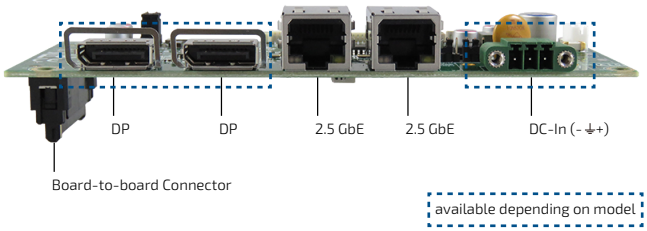
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Product Highlights

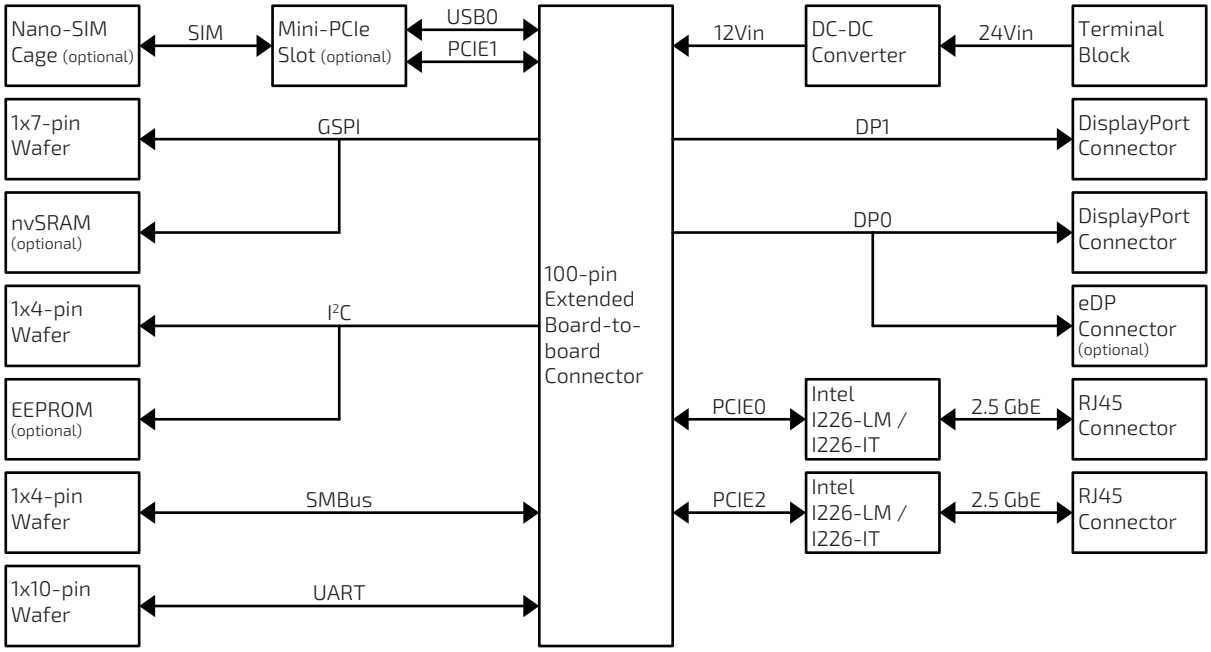
3.5" Extended I/O Board for General Purpose Applications

3.5"-eIO-GPA is an extended I/O board designed for Kontron 3.5"-SBC Series products for general purpose applications to facilitate system integration with less efforts and investment in I/O extension.

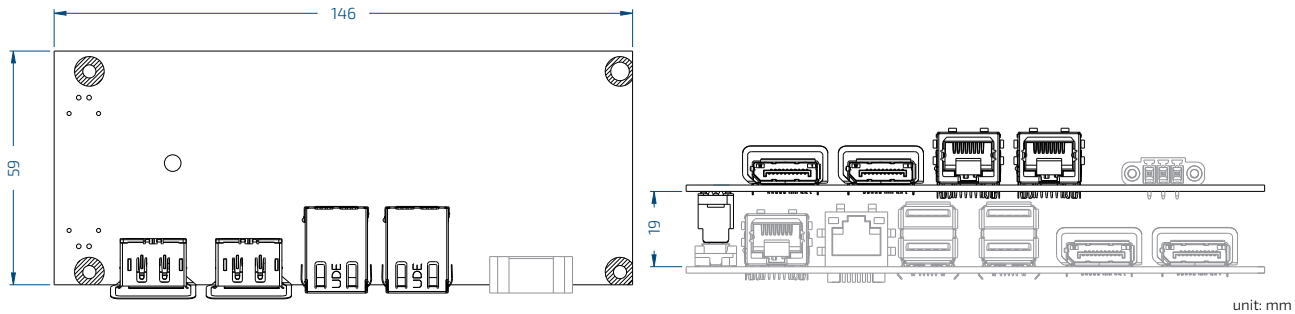
- Up to 2x DP for video output
- 2x 2.5 GbE LAN for Ethernet
- Up to 1x UART, up to 1x I²C, up to 1x SMBus, up to 1x GSPI
- DC 11 V ~ 32 V voltage input support
- Applicable to Kontron 3.5"-SBC Series products



Block Diagram



Mechanical Dimensions



unit: mm

Technical Information

VIDEO	DISPLAY INTERFACE	2x DP (on rear, available depending on model) 1x eDP (optional, trade off with 1x DP)
NETWORK CONNECTION	ETHERNET	2x 2.5 GbE LAN (RJ45 on rear, Intel® I226-LM / I226-IT)
PERIPHERAL CONNECTION	SERIAL PORT OTHER I/Os	1x UART (by header, available depending on model) 1x I²C (by header, available depending on model) 1x SMBus (by header, available depending on model) 1x GSPI (by header, available depending on model)
STORAGE & EXPANSION	MEMORY PCI EXPRESS SIM CARD HOLDER	1 MByte nvSRAM (optional, trade off with GSPI) 32 KByte EEPROM (optional, trade off with I²C) 1x mPCIe (optional, Full Size, w/ PCIe x1 & USB 2.0, trade off with 2nd 2.5 GbE) 1x SIM Card Holder (optional, Nano size, Push-Push type, conencted to PCIe)
POWER	INPUT VOLTAGE CONNECTOR	DC 11 V ~ 32 V (w/ reserve polarity protection, DC input from terminal block) DC 12 V / 5 VSB / 3.3 VSB (DC input from B2B connector) 1x3-pin 3.5 mm pitch terminal block (w/ reverse polarity protection, by model) B2B Connector
MECHANICAL	DIMENSION (L x W) CONNECTOR	146 mm x 59 mm / 5.75" x 2.32" 100-pin extended B2B connector
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE HUMIDITY	0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme) -20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme) 0 % ~ 95 %
APPLICATION	SUPPORTED BASEBOARD	Kontron 3.5"-SBC

Supportability

3.5"-eIO-GPA SIGNAL	2x 2.5 GbE	2x/0x DP*	1x/0x UART*	1x/0x I²C*	1x/0x SMBus*	1x/0x GSPI*
SUPPORT BY 3.5"-SBC-TGL	2x	2x/0x	1x/0x	1x/0x	1x/0x	1x/0x
SUPPORT BY 3.5"-SBC-EKL	2x	0x/0x	1x/0x	1x/0x	1x/0x	1x/0x
SUPPORT BY 3.5"-SBC-AML/ADN/AMH/ADH	2x	1x/0x	1x/0x	1x/0x	1x/0x	1x/0x
SUPPORT BY 3.5"-SBC-RPL/RPH	2x	2x/0x	1x/0x	1x/0x	1x/0x	1x/0x
SUPPORT BY 3.5"-SBC-PTL	2x	1x/0x	1x/0x	0x/0x	0x/0x	x1/0x
SUPPORT BY 3.5"-SBC-P100	2x	1x/0x	1x/0x	0x/0x	0x/0x	x1/0x

* Actual availability number varies depending on variants. Refer to Ordering Information for details.

Mating Connector Information

ARTICLE	VENDOR	MODEL NO.
BOARD-TO-BOARD CONNECTOR	HIROSE ELECTRONIC	3.5"-SBC side: FX23L-100S-0.5SV 3.5"-eIO-GPA side: FX23-100P-0.5SV20

Ordering Information

ARTICLE	ORDERING CODE		REAR I/O			ONBOARD I/O				ETH. CTRL.	OP. TEMP. (°C)
	EMEA / AMER	APAC	2.5 GBE	DP	DC IN	UART	I²C	SMBus	GSPI		
3.5"-eIO-GPA-0	1069-6159	B35EGPA0-001001T	2	2	1	1	1	1	1	I226-LM	0 ~ 60
3.5"-eIO-GPA-1	1069-6922	B35EGPA0-011001T	2	2	-	1	1	1	1	I226-LM	0 ~ 60
3.5"-eIO-GPA-2-XT	1073-9682	B35EGPAI-021000T	2	2	1	1	1	1	1	I226-IT	-40 ~ 85
3.5"-eIO-GPA-3*	1073-6700	B35EGPA0-031002T	2	-	-	-	-	-	-	I226-LM	0 ~ 60
3.5"-eIO-GPA-4-XT*	1073-8651	B35EGPAI-041002T	2	-	-	-	-	-	-	I226-IT	-40 ~ 85

(* project based)

Board-to-board Connector Pin Assignment

PIN NUMBER	SIGNAL	PIN NUMBER	SIGNAL
P3	+12V_IN / +12V_OUT	P1	+5VSB_OUT
51	GSPI_CLK	1	+3.3VSB_OUT
52	GSPI_MOSI	2	+3.3VSB_OUT
53	GSPI_MISO	3	+3.3VSB_OUT
54	GSPI_CS0#	4	+3.3VSB_OUT
55	GSPI_CS1#	5	+3.3VSB_OUT
56	GND	6	GND
57	DP1_TX0+ / HDMI1_TX2+	7	eDP_DP0_TX0+ / HDMI0_TX2+
58	DP1_TX0- / HDMI1_TX2-	8	eDP_DP0_TX0- / HDMI0_TX2-
59	GND	9	GND
60	DP1_TX1+ / HDMI1_TX1+	10	eDP_DP0_TX1+ / HDMI0_TX1+
61	DP1_TX1- / HDMI1_TX1-	11	eDP_DP0_TX1- / HDMI0_TX1-
62	GND	12	GND
63	DP1_TX2+ / HDMI1_TX0+	13	eDP_DP0_TX2+ / HDMI0_TX0+
64	DP1_TX2- / HDMI1_TX0-	14	eDP_DP0_TX2- / HDMI0_TX0-
65	GND	15	GND
66	DP1_TX3+ / HDMI1_CLK+	16	eDP_DP0_TX3+ / HDMI0_CLK+
67	DP1_TX3- / HDMI1_CLK-	17	eDP_DP0_TX3- / HDMI0_CLK-
68	GND	18	GND
69	DP1_AUX+ / HDMI1_DDC_CLK	19	eDP_DP0_AUX+ / HDMI0_DDC_CLK
70	DP1_AUX- / HDMI1_DDC_DATA	20	eDP_DP0_AUX- / HDMI0_DDC_DATA
71	GND	21	GND
72	PCIE1_CLK_REF+	22	PCIE0_CLK_REF+
73	PCIE1_CLK_REF-	23	PCIE0_CLK_REF-
74	GND	24	GND
75	PCIE1_TX+ / SATA1_TX+	25	PCIE0_TX+ / SATA0_TX+
76	PCIE1_TX- / SATA1_TX-	26	PCIE0_TX- / SATA0_TX-
77	GND	27	GND
78	PCIE1_RX+ / SATA1_RX-	28	PCIE0_RX+ / SATA0_RX-
79	PCIE1_RX- / SATA1_RX+	29	PCIE0_RX- / SATA0_RX+
80	GND	30	GND
81	PCIE3_TX+ / USB1_SSTX+	31	PCIE2_TX+ / USB0_SSTX+
82	PCIE3_TX- / USB1_SSTX-	32	PCIE2_TX- / USB0_SSTX-
83	GND	33	GND
84	PCIE3_RX+ / USB1_SSRX+	34	PCIE2_RX+ / USB0_SSRX+
85	PCIE3_RX- / USB1_SSRX-	35	PCIE2_RX- / USB0_SSRX-
86	GND	36	GND
87	USB1_D-	37	USB0_D-
88	USB1_D+	38	USB0_D+
89	GND	39	GND
90	I2C_CLK	40	UART_TXD
91	I2C_DATA	41	UART_RXD
92	SMB_CLK	42	UART_CTS#
93	SMB_DATA	43	UART_RTS#
94	GND	44	GND
95	SMB_ALERT#	45	eDP_PWM
96	PCIE_WAKE#	46	eDP_VDDEN
97	PCIE_PLTRST#	47	eDP_BKLTEN
98	DP1_HPD / HDMI1_HPD	48	eDP_DP0_HPD / HDMI0_HPD
99	DP1_EN# / HDMI1_EN	49	eDP_DP0_EN# / HDMI0_EN
100	PS_ON#	50	USB_OC#
P4	+12V_IN / +12V_OUT	P2	+12V_IN / +12V_OUT

Note: The supported functions depend on the 3.5"-SBC board.

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The Power of IoT

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