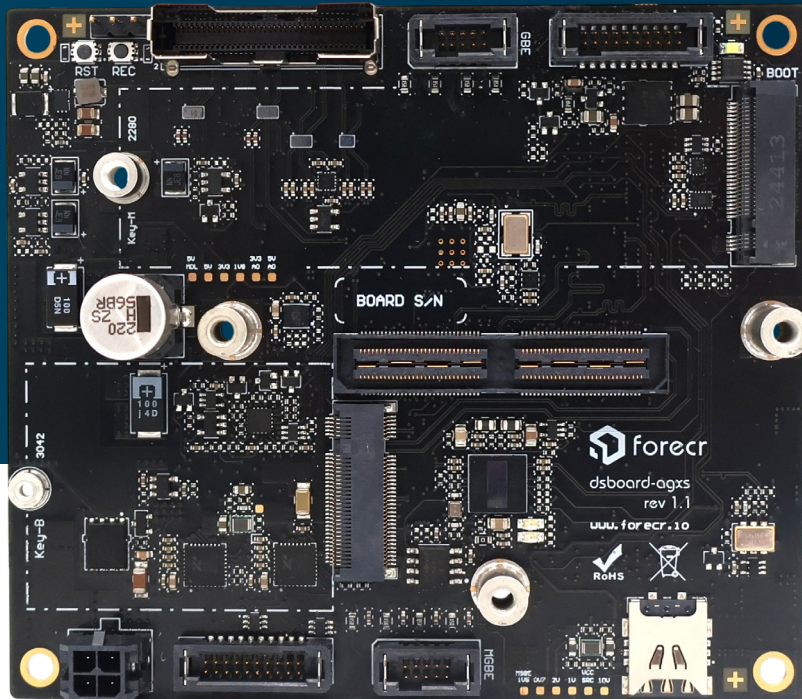




USER MANUAL



Elite Partner

Forecr
<https://www.forecr.io>
support@forecr.io

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Preface

Disclaimer

Forecr emphasizes that the information contained in this user manual is continuously updated in line with the technical modifications and enhancements made by Forecr to its carrier board. Therefore, this manual only represents the technical status of Forecr carrier board at the time of publishing.

Forecr shall not be held responsible for any damages that may occur directly or indirectly as a result of any technical or typographical errors or omissions found in this document or for any discrepancies between the product and the user's manual.

Customer Support

In case you encounter any challenges after reading the user manual and/or using the carrier board, please reach out to the Forecr reseller from which you purchased the carrier board.

See the contact information section below for more information on how to contact us directly.

Contact Information

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Symbols

	ElectroStatic Discharge (ESD) Sensitive Device! Electronic boards and their components are sensitive to static electricity. When handling any circuit board assemblies, it is recommended that ESD safety precautions be observed. ESD safe best practices include, but are not limited to: • Do not handle the carrier board out of its antistatic packaging while it is not used for operational purposes unless it is otherwise protected. • Whenever possible, unpack or pack this product only at ESD safe work stations. • Where a safe work station is not guaranteed, it is important for the user to be electrically discharged before touching the product with his/her hands or tools. • Try to handle the board by the edges, avoiding contact with components.
	HOT Surface! Do not touch. Contact may cause burns. Allow to cool before servicing.
	Waste Electrical and Electronic Equipment (WEEE)! The carrier board should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.
	Restriction of Hazardous Substances (RoHS)! The carrier board complies with the regulations and restrictions established by the ROHS Directive and does not contain hazardous substances in concentrations that may be harmful to health or the environment.

Limited Product Warranty

Forecr provides a 1-year Warranty for the carrier board. This warranty period is valid from the original purchase date of the carrier board. In order to maintain warranty, the carrier board must not be altered or modified in any way. Changes or modifications to the board, that are not explicitly approved by Forecr and described in this user manual or received from Forecr Support as a special handling instruction, will void your warranty.

To receive warranty service, the carrier board must be delivered to Forecr within the warranty period together with the original invoice or proof of purchase.

Revision History

Revision No	Revision Date	Revision Description
1.0	19.01.2026	Preliminary Release
1.1	27.07.2026	Updated the board revision and added software installation details.
1.11	09.09.2026	Added Ordering Information, MTBF details, and JetPack 7.2+ installation instructions. Updated the GPIO list.
1.12	29.09.2026	Added Serial Communication Interface, Accessories, Add-on board, and On-Board I2C Devices List sections.

1. Introduction

The DSBOARD-AGXS is engineered to bring powerful edge AI performance to the most space-constrained industrial environments. Featuring the exact same compact footprint as the Jetson AGX Orin SOM, it delivers seamless integration while supporting 32GB, 64GB, and Industrial AGX Orin modules.

Built for exceptional efficiency, the board enables next-generation AI workloads with high-speed 10G and 1G Ethernet, three USB 3.2 ports, and versatile M.2 expansion for high-bandwidth storage and wireless connectivity. Its dedicated camera expansion slot supports MIPI and GMSL add-on boards, making it the ideal foundation for vision-centric applications.

The DSBOARD-AGXS offers a wide range of industrial I/O interfaces, such as RS-232/422/485, CAN, digital I/Os, SPI, I2C, UART, and PWM. It also features an onboard 6-axis IMU, a temperature sensor, and a nanoSIM slot to ensure reliable performance across all Edge AI deployments. This compact and powerful board is built for harsh environments using locking connectors and a vibration-resistant architecture.

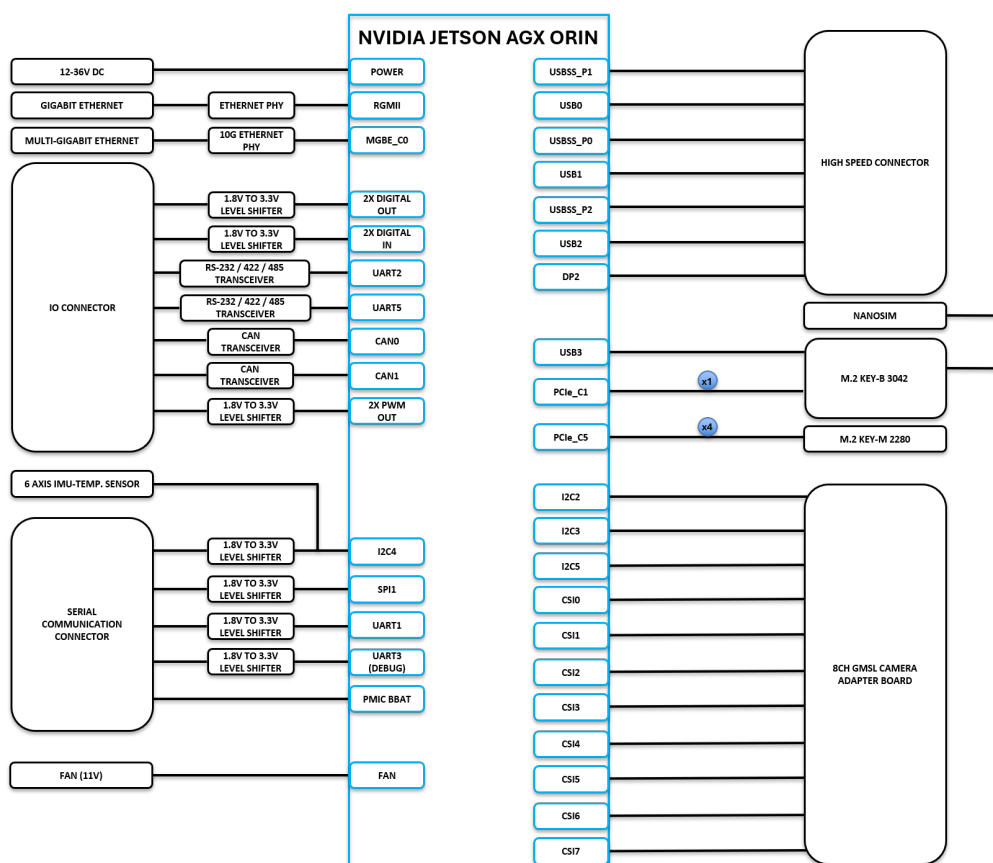
The latest revision of this user manual, datasheet, and 3D model can be downloaded from the [Forecr](#) website.

2. Product Specification

2.1 Technical Specification

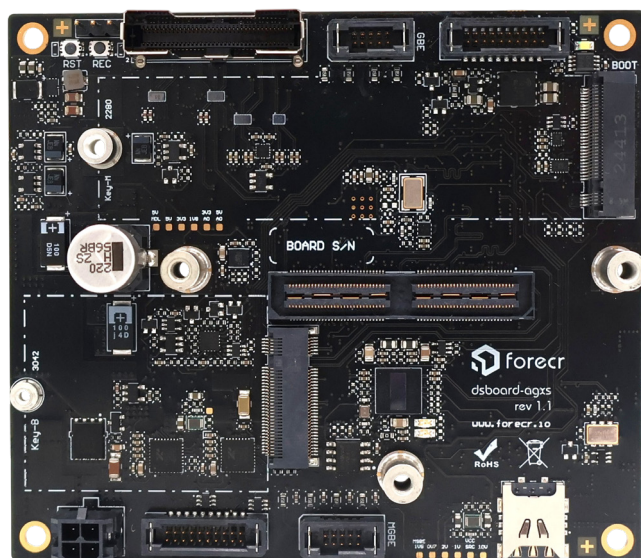
Supported Modules	NVIDIA Jetson AGX Orin 32GB NVIDIA Jetson AGX Orin 64GB NVIDIA Jetson AGX Orin Industrial
Memory	32 GB 256-bit LPDDR5x 64 GB 256-bit LPDDR5x
Graphics Interfaces	1x DisplayPort 1.4
Interfaces	1x 10G Ethernet (Copper) 1x Gigabit Ethernet (Copper) 3x USB3.2 Gen2 2x RS-232/422/485 (Software Configurable) 2x CAN-FD 2x Digital Input (3.3 Level) 2x Digital Output (3.3 Level) 2x PWM (3.3 Level) 1x Serial Communications Header (1x SPI, 1x I2C, 2x UART) (3.3 Level) FAN Connector (11V default, 5V optional)
Other Features	6-axis IMU, Temperature Sensor
Wireless Communication	WiFi/Bluetooth/LTE/5G Connectivity by extension sockets
Power Supply	12-36 VDC
Extension Sockets	1x M.2 Key-B 3042 (PCIe x1, USB2.0) 1x Camera Expansion Slot (6x 2-Lane or 4x 4-Lane)
Mass Storage	1x M.2 Key-M 2280 (PCIe Gen4 x4)
Ambient Conditions	-40°C ... +85°C
Form Factor / Dimensions	87 mm x 100 mm, 72 gr
Operating Systems	Ubuntu Linux 20.04 / 22.04 / 24.04
JetPack Support	JetPack 5.x / 6.x / 7.2+

2.2 Block Diagram

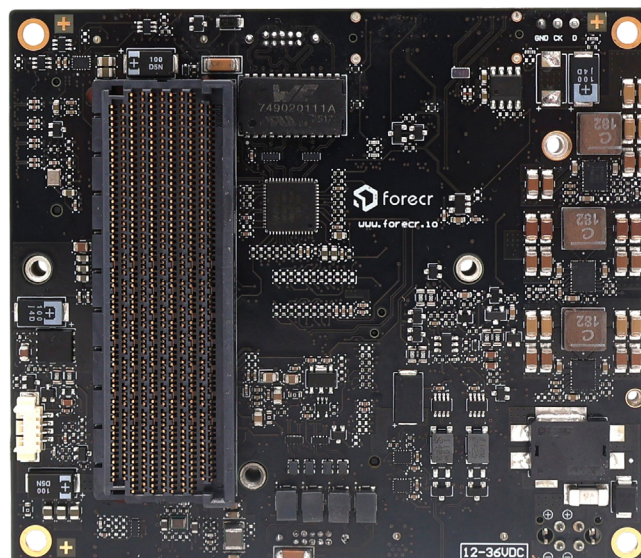


2.3 Board Visuals

Front Side



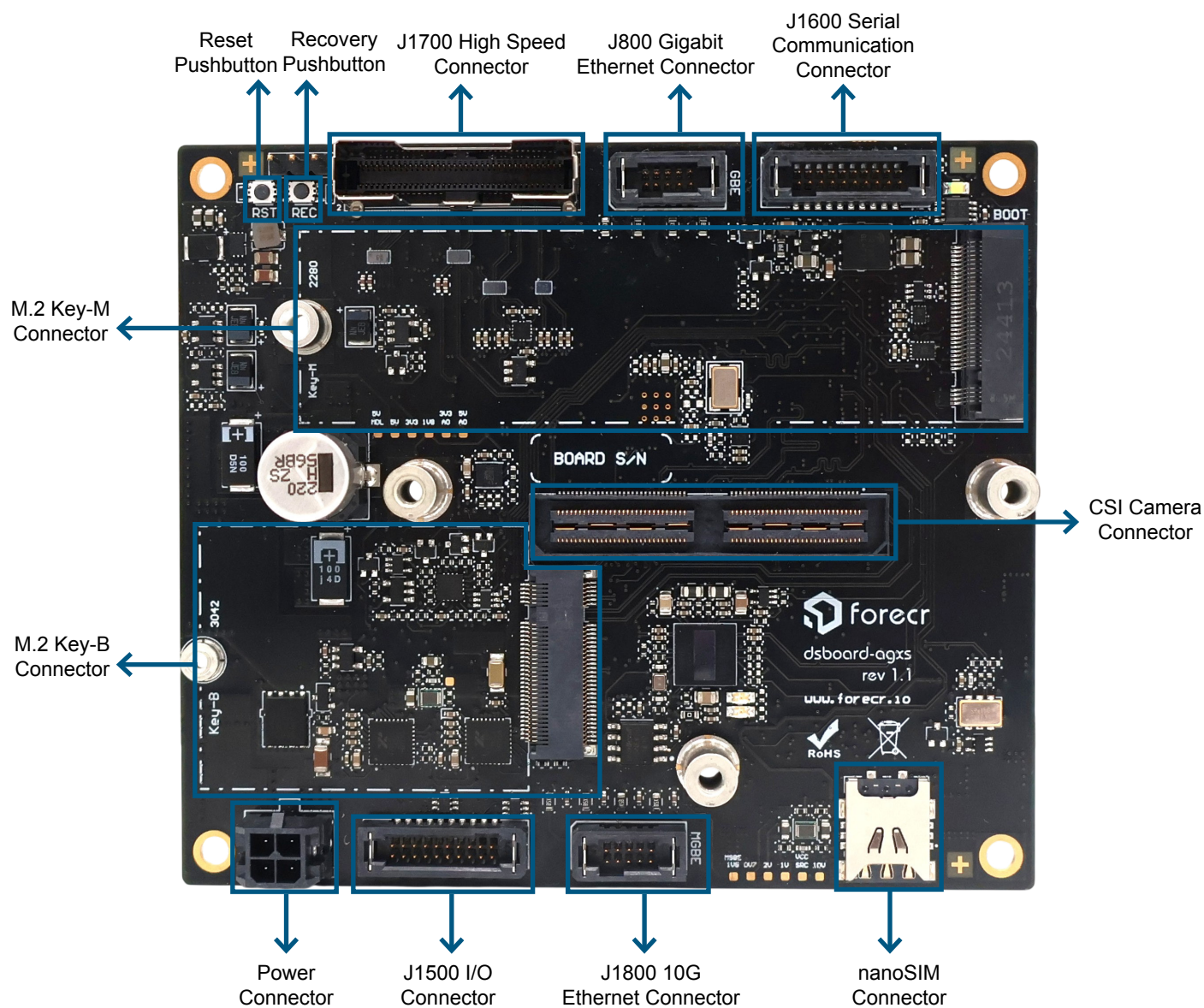
Rear Side



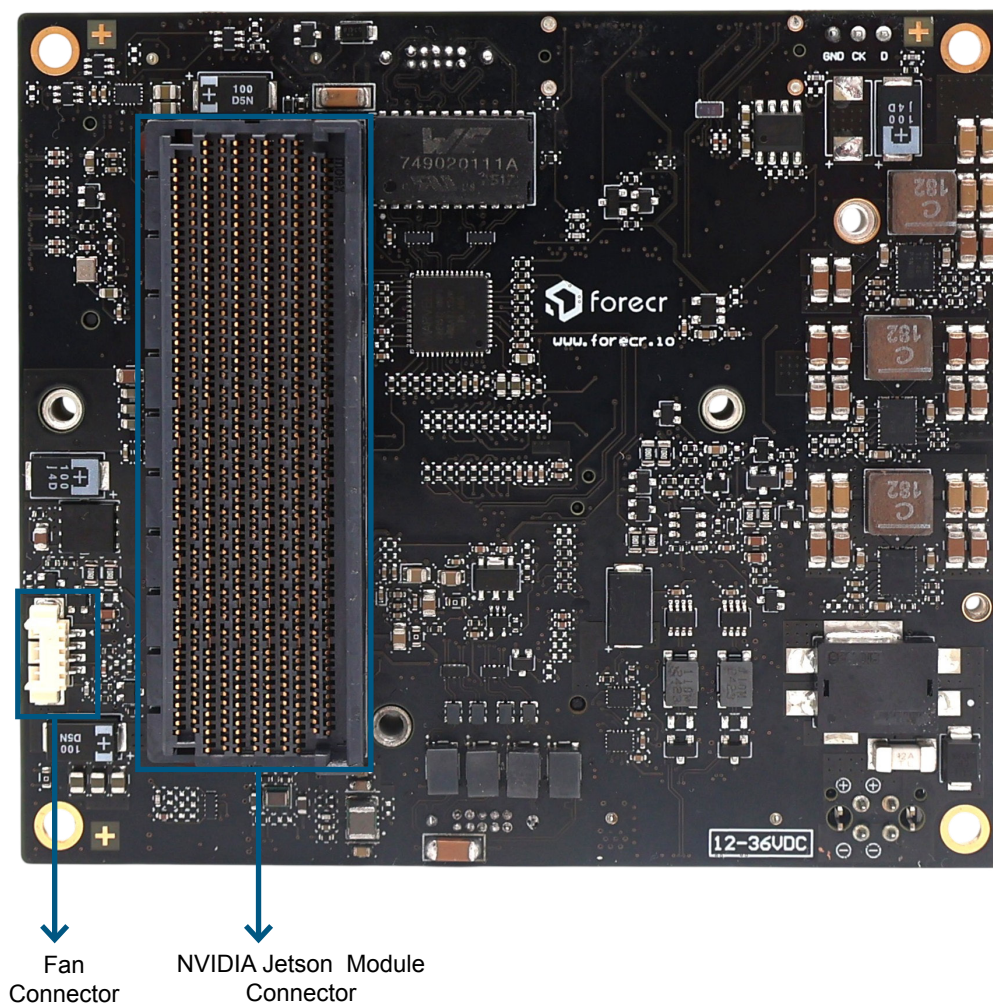
3. Hardware Information

3.1 Connector and Button Location

3.1.1 Front Side



3.1.2 Rear Side

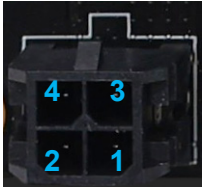


3.2 List of Connectors and Buttons

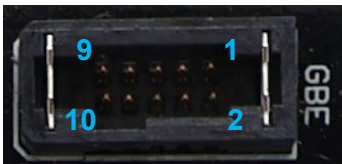
Connectors
DSBOARD-AGXS Power Connector
DSBOARD-AGXS J800 Gigabit Ethernet Connector
DSBOARD-AGXS J1500 I/O Connector
DSBOARD-AGXS J1600 Serial Communication Connector
DSBOARD-AGXS J1800 10G Ethernet Connector
DSBOARD-AGXS J1700 High Speed Connector
DSBOARD-AGXS M.2 Key-M Connector
DSBOARD-AGXS M.2 Key-B Connector
DSBOARD-AGXS CSI Camera Connector
DSBOARD-AGXS nanoSIM Connector
DSBOARD-AGXS Fan Connector
Buttons
DSBOARD-AGXS Recovery Pushbutton
DSBOARD-AGXS Reset Pushbutton

3.3 Definition of Each Connector

3.3.1 Power Connector

	Function	Description			
	Connector Type	0430450424			
	Mating Connector	0430250408			
	Minimum Input Voltage	+12 VDC			
	Maximum Input Voltage	+36 VDC			
	Pinout	Pin	Description	Pin	Description
		1	Negative	3	Positive
		2	Negative	4	Positive

3.3.2 J800 Gigabit Ethernet Connector

	Function	Description			
	Connector Type	TFM-105-01-L-D-WT			
	Mating connector	ISDF-05-D-M			
	Pinout	Pin	Description	Pin	Description
		1	DGND	6	GBE_CONN.MDI2_P
		2	GBE_CONN.MDI1_P	7	GBE_CONN.MDI3_N
		3	GBE_CONN.MDI0_N	8	GBE_CONN.MDI2_N
		4	GBE_CONN.MDI1_N	9	GBE_CONN.MDI3_P
		5	GBE_CONN.MDI0_P	10	DGND

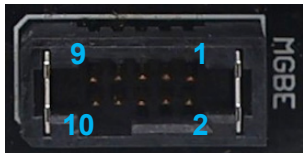
3.3.3 J1500 I/O Connector

	Function	Description			
	Connector Type	TFM-110-02-L-D-WT			
	Mating connector	ISDF-10-D-M			
	Pinout	Pin	Description	Pin	Description
		1	RS422_CH1.RX_N	11	CAN0_CONN_P
		2	RS422_CH1.TX_N	12	CAN1_CONN_P
		3	RS422_CH1.RX_P	13	CAN0_CONN_N
		4	RS422_CH1.TX_P	14	CAN1_CONN_N
		5	RS422_CH0.RX_N	15	DGND
		6	RS422_CH0.TX_N	16	DGND
		7	RS422_CH0.RX_P	17	DIGITAL_IN0_3V3
		8	RS422_CH0.TX_P	18	DIGITAL_OUT0_3V3
		9	PWM1_OUT_3V3	19	DIGITAL_IN1_3V3
		10	PWM5_OUT_3V3	20	DIGITAL_OUT1_3V3

3.3.4 J1600 Serial Communication Connector

	Function	Description			
	Connector Type	TFM-110-02-L-D-WT			
	Mating connector	ISDF-10-D-M			
	Pinout	Pin	Description	Pin	Description
		1	VDD_5V (1A max, 0.5A nominal)	11	UART1_3V3.TX
		2	VDD_3V3 (1A max, 0.5A nominal)	12	UART1_3V3.RTS
		3	DGND	13	UART1_3V3.RX
		4	DGND	14	UART1_3V3.CTS
		5	SPI1_3V3.CS0	15	FORCE_RECOVERY*
		6	SPI1_3V3.SCK	16	UART3_3V3.TX
		7	SPI1_3V3.MISO	17	SYS_RST_IN*
		8	SPI1_3V3.MOSI	18	UART3_3V3.RX
		9	I2C4_3V3.SCL	19	BUTTON_POWER_ON_N
		10	I2C4_3V3.SDA	20	PMIC_BBATT

3.3.5 J1800 10G Ethernet Connector

	Function	Description			
	Connector Type	TFM-105-01-L-D-WT			
	Mating connector	ISDF-05-D-M			
	Pinout	Pin	Description	Pin	Description
		1	CGND	6	ENET_10G_CONN.D3_N
		2	ENET_10G_CONN.D0_P	7	ENET_10G_CONN.D2_N
		3	ENET_10G_CONN.D1_N	8	ENET_10G_CONN.D3_P
		4	ENET_10G_CONN.D0_N	9	ENET_10G_CONN.D2_P
		5	ENET_10G_CONN.D1_P	10	CGND

3.3.6 J1700 High Speed Connector

Function	Description			
Connector Type	ARF6-24-S-D-A-K-TR			
Mating Cable	ARC6-24-xx.x-LU-LU-3-1			
Pinout	Pin	Description	Pin	Description
	1	DGND	38	DGND
	2	DGND	39	NC
	3	USBSS1_CONN.TX_P	40	USBSS2_CONN.D_P
	4	USBSS0_CONN.TX_P	41	NC
	5	USBSS1_CONN.TX_N	42	USBSS2_CONN.D_N
	6	USBSS0_CONN.TX_N	43	NC
	7	DGND	44	DGND
	8	DGND	45	NC
	9	USBSS1_CONN.RX_P	46	USBSS2_VBUS
	10	USBSS0_CONN.RX_P	47	DP2_CEC_CONN
	11	USBSS1_CONN.RX_N	48	USBSS2_VBUS
	12	USBSS0_CONN.RX_N	49	DGND
	13	DGND	50	DGND
	14	DGND	51	DP2_CON.TXD2_N
	15	USBSS1_CONN.D_P	52	VDD_3V3_DP
	16	USBSS0_CONN.D_P	53	DP2_CON.TXD2_P
	17	USBSS1_CONN.D_N	54	VDD_3V3_DP
	18	USBSS0_CONN.D_N	55	DGND
	19	DGND	56	DGND
	20	DGND	57	DP2_CON.TXD1_N
	21	USBSS1_VBUS	58	DP2_CON.AUX_P
	22	USBSS0_VBUS	59	DP2_CON.TXD1_P
	23	USBSS1_VBUS	60	DP2_CON.AUX_N
	24	USBSS0_VBUS	61	DGND
	25	NC	62	DGND
	26	DGND	63	DP2_CON.TXD0_N
	27	NC	64	DP2_CON.TXD3_N
	28	USBSS2_CONN.TX_P	65	DP2_CON.TXD0_P
	29	NC	66	DP2_CON.TXD3_P
	30	USBSS2_CONN.TX_N	67	DGND
	31	NC	68	DGND
	32	DGND	69	DP2_HPDCONN
	33	NC	70	NC
	34	USBSS2_CONN.RX_P	71	DP2_MODE
	35	NC	72	NC
	36	USBSS2_CONN.RX_N	73	DGND
37	NC	74	DGND	

3.3.7 M.2 Key-M Connector

Function	Description			
Connector Type	123A-85MA0			
Pinout	Pin	Description	Pin	Description
	1	DGND	35	UPHY_TX13_N
	2	VDD_3V3	36	NC
	3	DGND	37	UPHY_TX13_P
	4	VDD_3V3	38	NC
	5	UPHY.RX15_N	39	DGND
	6	NC	40	NC
	7	UPHY.RX15_P	41	UPHY.RX12_N
	8	NC	42	NC
	9	DGND	43	UPHY.RX12_P
	10	NC	44	GPIO34_M2_KEYM_ALERT*
	11	UPHY_TX15_N	45	DGND
	12	VDD_3V3	46	NC
	13	UPHY_TX15_P	47	UPHY_TX12_N
	14	VDD_3V3	48	NC
	15	DGND	49	UPHY_TX12_P
	16	VDD_3V3	50	PEX.L5_RST_N
	17	UPHY.RX14_N	51	DGND
	18	VDD_3V3	52	PEX.L5_CLKREQ_N
	19	UPHY.RX14_P	53	PEX.CLK5_N
	20	NC	54	GPIO29_M2_KEYM_PEWAKE*
	21	DGND	55	PEX.CLK5_P
	22	NC	56	NC
	23	UPHY_TX14_N	57	DGND
	24	NC	58	NC
	25	UPHY_TX14_P	67	NC
	26	NC	68	32KHZ_CLK
	27	DGND	69	NC
	28	NC	70	VDD_3V3
	29	UPHY.RX13_N	71	DGND
	30	NC	72	VDD_3V3
	31	UPHY.RX13_P	73	DGND
	32	NC	74	VDD_3V3
	33	DGND	75	DGND
	34	NC		

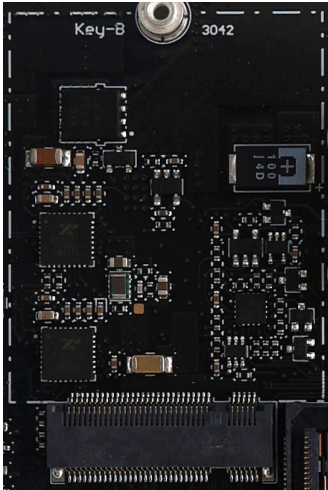
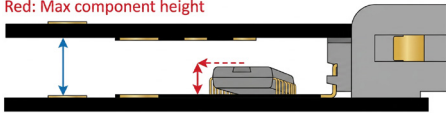
Board to board spacing= 6.75 mm

Max component height= 2.1 mm

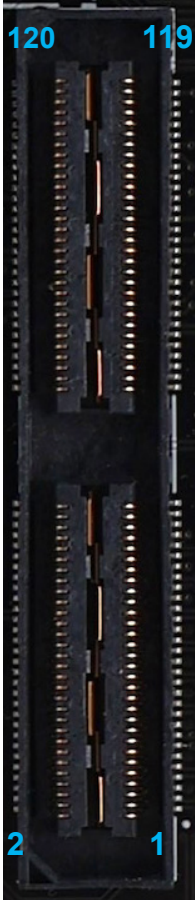
Blue: Board-to-Board spacing

Red: Max component height

3.3.8 M.2 Key-B Connector

	Function	Description			
	Connector Type	SM3ZS067U410ABR1000			
	Pinout	Pin	Description	Pin	Description
		1	NC	43	UPHY.RX21_P
		2	VDD_3V8	44	NC
		3	DGND	45	DGND
		4	VDD_3V8	46	NC
		5	DGND	47	UPHY_TX21_N
		6	M2B_FULLCARD_PWOFF#	48	NC
		7	USB3.D_P	49	UPHY_TX21_P
		8	M2B_W_DISABLE1#	50	PEX.L7_RST_N
		9	USB3.D_N	51	DGND
		10	NC	52	PEX.L7_CLKREQ_N
		11	DGND	53	PEX.CLK6_N
		20	NC	54	PCIE_WAKE_N
		21	NC	55	PEX.CLK6_P
		22	NC	56	NC
		23	NC	57	DGND
		24	NC	58	NC
		25	NC	59	NC
		26	M2B_W_DISABLE2#	60	NC
		27	DGND	61	NC
		28	NC	62	NC
		29	NC	63	NC
		30	M2_USIM_RST	64	NC
		31	NC	65	NC
		32	M2_USIM_CLK	66	NC
		33	DGND	67	M2B_RESET
		34	M2_USIM_DAT	68	NC
		35	NC	69	NC
		36	M2_USIM_VDD	70	VDD_3V8
		37	NC	71	DGND
		38	NC	72	VDD_3V8
		39	DGND	73	DGND
		40	NC	74	VDD_3V8
		41	UPHY.RX21_N	75	NC
		42	NC		
		Board to board spacing= 2.45 mm			
		Max component height= 2 mm			
		Blue: Board-to-Board spacing			
		Red: Max component height			
					

3.3.9 CSI Camera Connector

	Function	Description					
	Connector Type	QSH-060-01-L-D-A-K-TR					
	Pinout	Pin	Description	Pin	Description	Pin	Description
		1	CSI0.D0_P	41	DGND	81	NC
		2	CSI1.D0_P	42	DGND	82	NC
		3	CSI0.D0_N	43	CSI4.CLK_P	83	NC
		4	CSI1.D0_N	44	CSI6.CLK_P	84	CAM_ERROR3
		5	DGND	45	CSI4.CLK_N	85	CAM_FRSYNC1
		6	DGND	46	CSI6.CLK_N	86	CAM_ERROR4
		7	CSI0.CLK_P	47	DGND	87	I2C2.SCL
		8	CSI1.CLK_P	48	DGND	88	CAM1.MCLK
		9	CSI0.CLK_N	49	CSI4.D1_P	89	I2C2.SDA
		10	CSI1.CLK_N	50	CSI6.D1_P	90	CAM1.PWDN
		11	DGND	51	CSI4.D1_N	91	CAM0.MCLK
		12	DGND	52	CSI6.D1_N	92	CAM1.RST
		13	CSI0.D1_P	53	DGND	93	CAM0.PWDN
		14	CSI1.D1_P	54	DGND	94	CAM2.MCLK
		15	CSI0.D1_N	55	NC	95	CAM0.RST
		16	CSI1.D1_N	56	NC	96	CAM_FRSYNC4
		17	DGND	57	NC	97	CAM_FRSYNC3
		18	DGND	58	NC	98	CAM_FRSYNC2
		19	CSI2.D0_P	59	CSI5.D0_P	99	DGND
		20	CSI3.D0_P	60	CSI7.D0_P	100	DGND
		21	CSI2.D0_N	61	CSI5.D0_N	101	CAM_TE_RSV
		22	CSI3.D0_N	62	CSI7.D0_N	102	VDD_1V8
		23	DGND	63	DGND	103	CAM_INT3
		24	DGND	64	DGND	104	CAM_INT4
		25	CSI2.CLK_P	65	NC	105	I2C5.SCL
		26	CSI3.CLK_P	66	NC	106	CAM_INT2
		27	CSI2.CLK_N	67	NC	107	I2C5.SDA
		28	CSI3.CLK_N	68	NC	108	VDD_3V3
		29	DGND	69	DGND	109	CAM_BACKLIGHT_PWM
		30	DGND	70	DGND	110	VDD_3V3
		31	CSI2.D1_P	71	CSI5.D1_P	111	NC
		32	CSI3.D1_P	72	CSI7.D1_P	112	NC
		33	CSI2.D1_N	73	CSI5.D1_N	113	NC
		34	CSI3.D1_N	74	CSI7.D1_N	114	NC
		35	DGND	75	CAM_I2C.SCL	115	DGND
		36	DGND	76	CAM_ERROR1	116	DGND
		37	CSI4.D0_P	77	CAM_I2C.SDA	117	CAM_INT1
		38	CSI6.D0_P	78	CAM_ERROR2	118	VDD_3V3
		39	CSI4.D0_N	79	DGND	119	CAM_VDD_SYS_EN
		40	CSI6.D0_N	80	DGND	120	VDD_3V3

3.3.10 nanoSIM Connector

	The DSBOARD-AGXS features a nanoSIM connector.
---	--

3.3.11 Fan Connector

Resistor slot for
5V fan voltage

Fan Connector

Resistor slot for
11V fan voltage

Function	Description	
Connector Type	532610471	
Mating Connector	0510210400 from Molex Picoblade series	
Pinout	Pin	Description
	1	DGND
	2	VDD_11V (Optional 5V with resistor change)
	3	FAN_TACH_1V8
	4	FAN_PWM_11V
Note: FAN voltage is 11V by default. There is a 0R 0603 resistor installed at 11V FAN voltage slot. To change FAN voltage to 5V, resistor at 11V slot must be removed first. Then a 0R 0603 resistor must be installed at the 5V slot.		

3.4 Definition of Each Button

3.4.1 Recovery Pushbutton

	The DSBOARD-AGXS includes a Recovery push button used to put the module into recovery mode. To enter recovery mode, press and hold both the Recovery and Reset buttons, release the Reset button, and keep the Recovery button pressed for a minimum of 250 ms.
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3.4.2 Reset Pushbutton

	The DSBOARD-AGXS features an onboard reset push button to trigger a hardware reset of the Jetson module.
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4. Software Information

4.1 Installation

The JetPack-5.x installation guide can be found [here](#).

The JetPack-6.x installation guide can be found [here](#).

The JetPack-7.2+ installation guide can be found [here](#).

5. Connectivity

5.1 General Purpose Input/Output (GPIO)

MODULE PIN NUMBER	I/O NAME	MODULE PIN NAME	TYPE	DESCRIPTION
E10	CAM_VDD_SYS_EN	GPIO12	OUTPUT	Enable signal for the camera system power supply.
A62	CAM_FRSYNC1	GPIO10	BIDIRECTIONAL	Camera 1 frame sync.
F59	CAM_FRSYNC2	GPIO07	BIDIRECTIONAL	Camera 2 frame sync.
E59	CAM_FRSYNC3	GPIO06	BIDIRECTIONAL	Camera 3 frame sync.
G7	CAM_FRSYNC4	GPIO13	BIDIRECTIONAL	Camera 4 frame sync.
L15	CAM_ERROR1	GPIO14	INPUT	Camera 1 error.
L9	CAM_ERROR2	GPIO28	INPUT	Camera 2 error.
A7	CAM_ERROR3	GPIO29	INPUT	Camera 3 error.
L4	CAM_ERROR4	UART4_RTS	INPUT	Camera 4 error.
L49	CAM0_PWDN	UART4_CTS	OUTPUT	Camera 0 power down (1.8V Level)
F10	CAM1_PWDN	GPIO15	OUTPUT	Camera 1 power down (1.8V Level)
L5	CAM0_RST	UART4_TX	OUTPUT	Camera 0 reset.
F9	CAM1_RST	GPIO16	OUTPUT	Camera 1 reset.
J54	CAM0.MCLK	MCLK02	OUTPUT	Camera 0 reference clock (1.8V Level)
H53	CAM1.MCLK	MCLK03	OUTPUT	Camera 1 reference clock (1.8V Level)
H55	CAM2.MCLK	MCLK04	OUTPUT	Camera 2 reference clock (1.8V Level)
E61	CAM_INT1	SPI2_CLK	INPUT	Camera 1 interrupt.
D62	CAM_INT2	SPI2_MISO	INPUT	Camera 2 interrupt.
F60	CAM_INT3	SPI2_MOSI	INPUT	Camera 3 interrupt.
D60	CAM_INT4	SPI2_CS0_N	INPUT	Camera 4 interrupt.
J51	CAM_TE_RSV	GPIO24	OUTPUT	Not connected as default
K57	CAM_BACKLIGHT_PWM	PWM01	OUTPUT	Not connected as default
A58	DIGITAL_IN0	GPIO20	INPUT	DIGITAL INPUT (3.3V Level)
B58	DIGITAL_IN1	GPIO21	INPUT	DIGITAL INPUT (3.3V Level)
B6	DIGITAL_OUT0	SDCARD_CLK	OUTPUT	DIGITAL OUTPUT (3.3V Level)
A5	DIGITAL_OUT1	SDCARD_CMD	OUTPUT	DIGITAL OUTPUT (3.3V Level)
H52	PWM1_OUT	GPIO27	OUTPUT	PWM OUTPUT (3.3V Level)
L50	PWM5_OUT	GPIO35	OUTPUT	PWM OUTPUT (3.3V Level)
A57	SERIAL_CH0.DE	UART2_CTS	OUTPUT	Driver enable for serial communication control.
G58	SERIAL_CH0.RE#	UART2_RTS	OUTPUT	Receiver enable for serial communication control.
F55	SERIAL_CH0.HALF/ FULL#	SPI3_CLK	OUTPUT	Half duplex or full duplex control for RS-485 communication protocol. Drive low for full duplex communication. Drive high for half duplex communication.
G56	SERIAL_CH0. RS485/RS232#	SPI3_MOSI	OUTPUT	RS-485/RS-232 mode select pin. Drive high for RS-485 communication. Drive low for RS-232 communication.

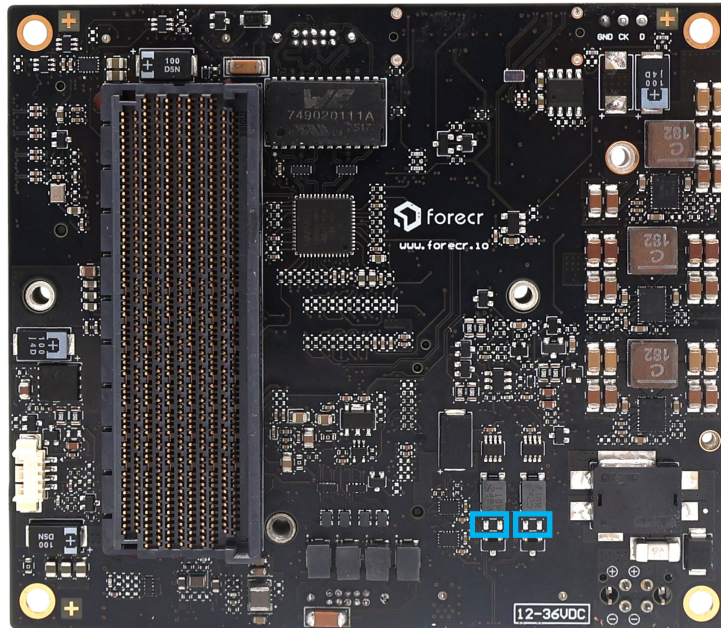
E56	SERIAL_CH0.TERM	SPI3_CS1_N	OUTPUT	The TERM pin enables the internal 120R differential termination resistor between the A and B lines in RS-485 mode to prevent signal reflections.
J59	SERIAL_CH1.DE	I2S3_DIN	OUTPUT	Driver enable for serial communication control.
K58	SERIAL_CH1.RE#	UART5_RTS	OUTPUT	Receiver enable for serial communication control
K59	SERIAL_CH1.HALF/ FULL#	I2S3_DOUT	OUTPUT	Half duplex or full duplex control for RS-485 communication protocol. Drive low for full duplex communication. Drive high for half duplex communication.
C60	SERIAL_CH1. RS485/RS232#	I2S3_FS	OUTPUT	RS-485/RS-232 mode select pin Drive high for RS-485 communication. Drive low for RS-232 communication.
C59	SERIAL_CH1.TERM	I2S3_SCLK	OUTPUT	The TERM pin enables the internal 120R differential termination resistor between the A and B lines in RS-485 mode to prevent signal reflections.
D56	XFI0_RST_N	SPI3_MISO	OUTPUT	10G Ethernet reset signal.
C57	XFI0_INT_N	SPI3_CS0_N	INPUT	10G Ethernet interrupt signal.
F54	GPIO22_USB_ VBUS_EN0	GPIO22	OUTPUT	Connect to enable and over-current pins of load switch.
K49	XFI0_MDIO	GPIO25	BIDIRECTIONAL	MGBE C0 Management Data
H51	XFI0_MDC	GPIO26	OUTPUT	MGBE C0 Management Clock
J55	M2B_RESET	GPIO32	OUTPUT	LTE/5G module reset control input. Drive high to trigger reset. Drive low for normal operation.
C55	M2B_W_DISABLE1#	GPIO18	OUTPUT	LTE/5G module airplane mode control. Drive low to enable air-plane mode. Drive high for normal operation.
A54	M2B_W_DISABLE2#	GPIO17	OUTPUT	LTE/5G module GNSS enablement control. Drive low to disable GNSS. Drive high for normal operation.
B59	M2B_FULLCARD_ PWROFF#	GPIO04	OUTPUT	LTE/5G module power on/off control. Drive low to power off the module. Drive high for normal operation.
A8	PCIE.WAKE_N	PEX_WAKE_N	INPUT	Wake up signal for LTE/5G module.
J4	GPIO29_M2_KEYM_ PEWAKE*	GPIO01	INPUT	Wake up signal for SSD module.
A55	GPIO34_M2_KEYM_ ALERT*	GPIO34	OUTPUT	Alert signal for SSD module.
J5	ENET_INT	ENET_INT	INPUT	Gigabit Ethernet interrupt signal.
H5	ENET_RST	ENET_RST_N	OUTPUT	Gigabit Ethernet reset signal.

5.2 I/O Connector

5.2.1 CANBus Interface

There are two CAN Bus interfaces on the DSBOARD-AGXS. TCAN332GDCNR transceivers are used between the native CAN pins of the Jetson and the connectors. There is an 0805 size 120R termination resistor between the CAN_H and CAN_L pins on the board, which is not populated by default. A standard resistor with the above specifications can be fitted if a termination resistor is needed on the DSBOARD-AGXS side.

CANBus Termination Resistor



5.2.2 Serial Communication Interface (RS232/RS422/RS485)

SP335EER1-L from MaxLinear is used to UART2 and UART5 to RS232/422/485 from Jetson.

For RS422 communication protocol, the SERIAL_CH#. RS485/RS232 GPIO for the corresponding channel should be driven high. To use half-duplex mode, HALF/FULL GPIO should be driven high. To use full-duplex mode, HALF/FULL GPIO should be driven low. Additionally, to enable 120 Ω termination the SERIAL_CH#. TERM GPIO for the corresponding channel should be driven high.

For RS232 communication protocol, the SERIAL_CH#. RS485/RS232 GPIO for the corresponding channel should be driven low.

Here, “#” represents the channel number.

The RS-485 communication direction is controlled through the DE (Driver Enable) and RE (Receiver Enable) pins. For data transmission, both DE and RE pins must be set HIGH. For data reception, both pins must be set LOW.

5.3 On-Board I2C Devices List

5.3.1 I2C1 Bus

- EEPROM (on Jetson SOM) - 0x50 (50h)

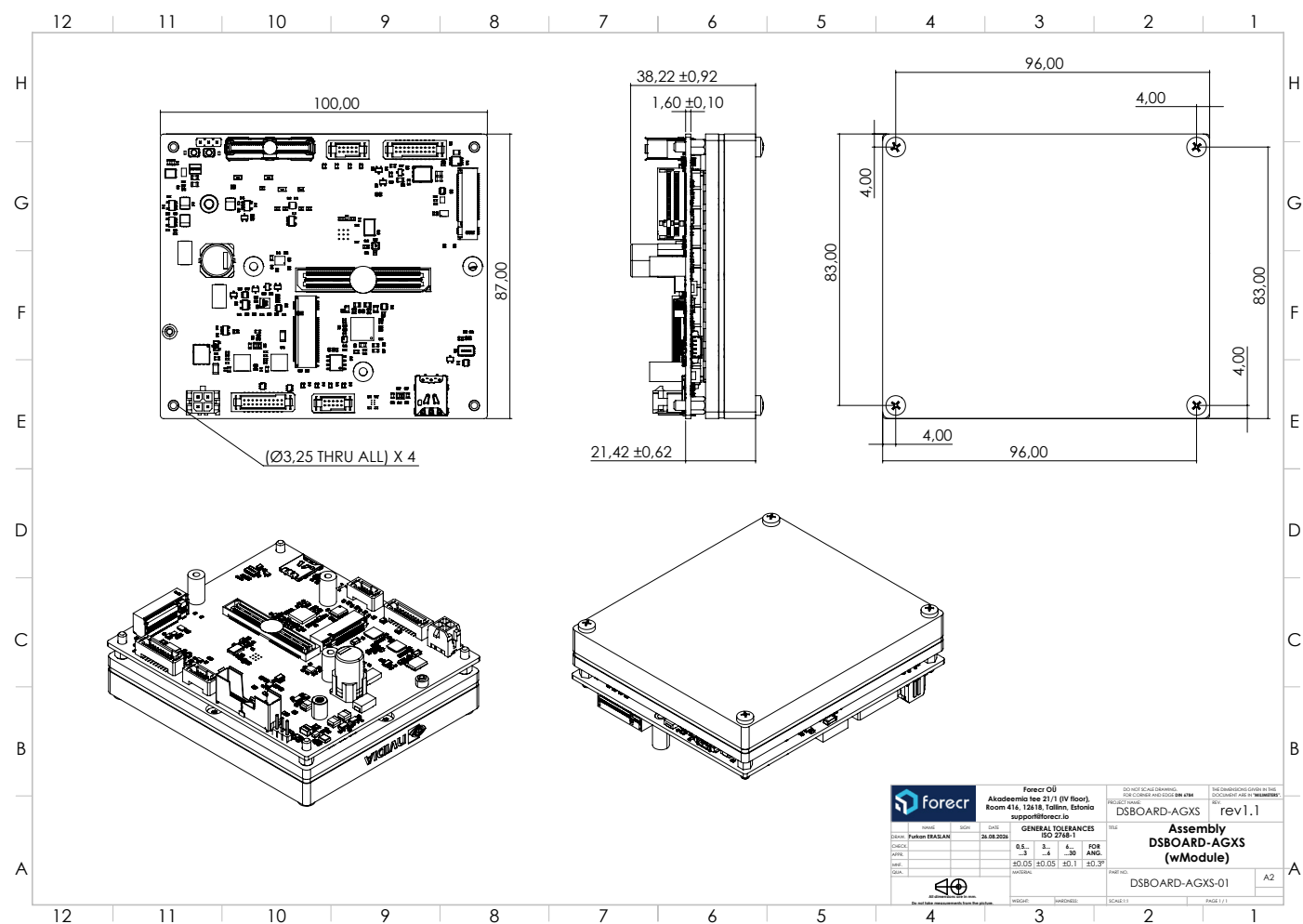
5.3.2 I2C2 Bus

- Power Monitor (on Jetson SOM) - 0x40 & 0x41 (40h & 41h)

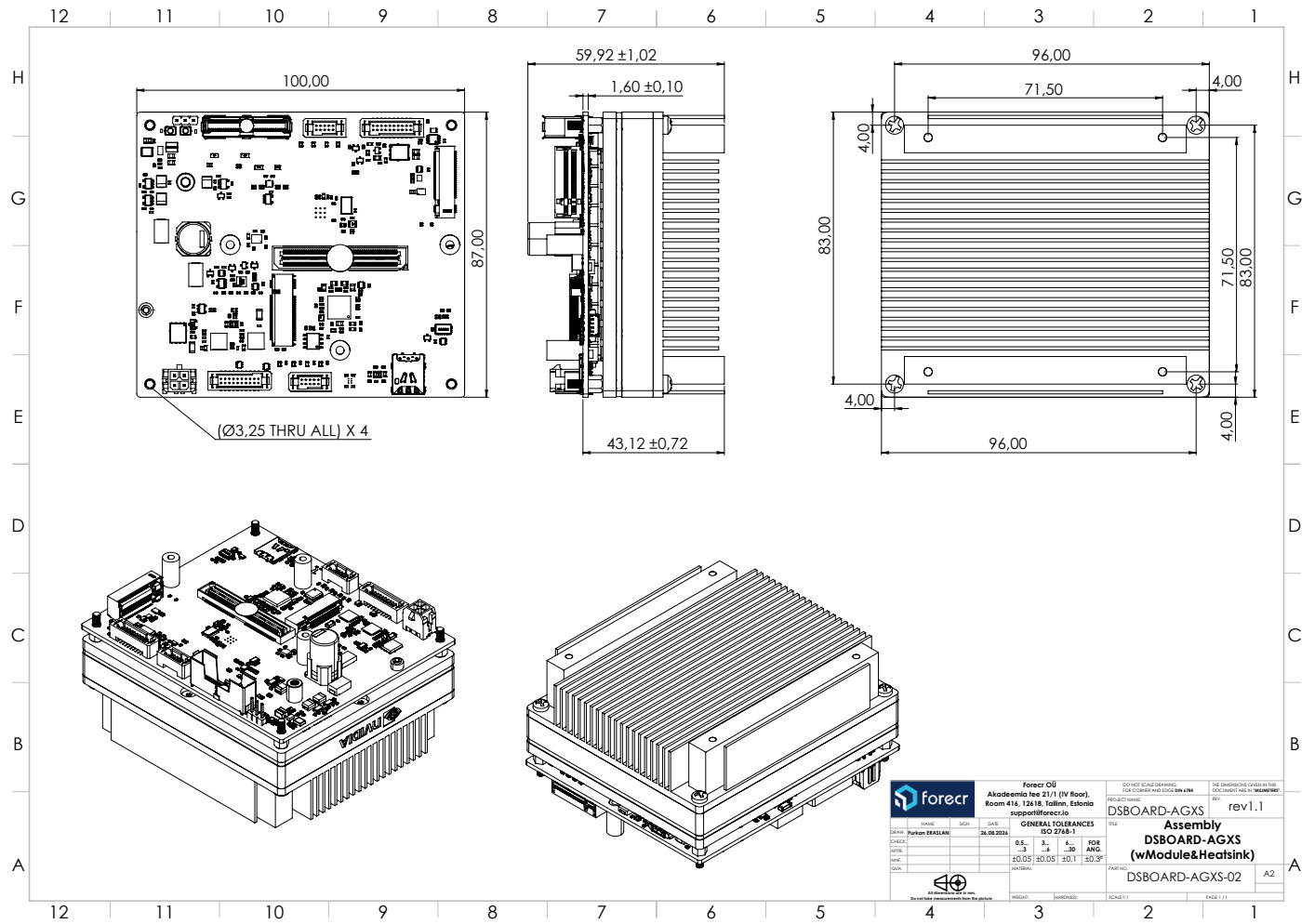
5.3.3 I2C4 Bus

- 6-Axis IMU & Temperature Sensor (P/N: 2536030320001)- 0x6B (6Bh)

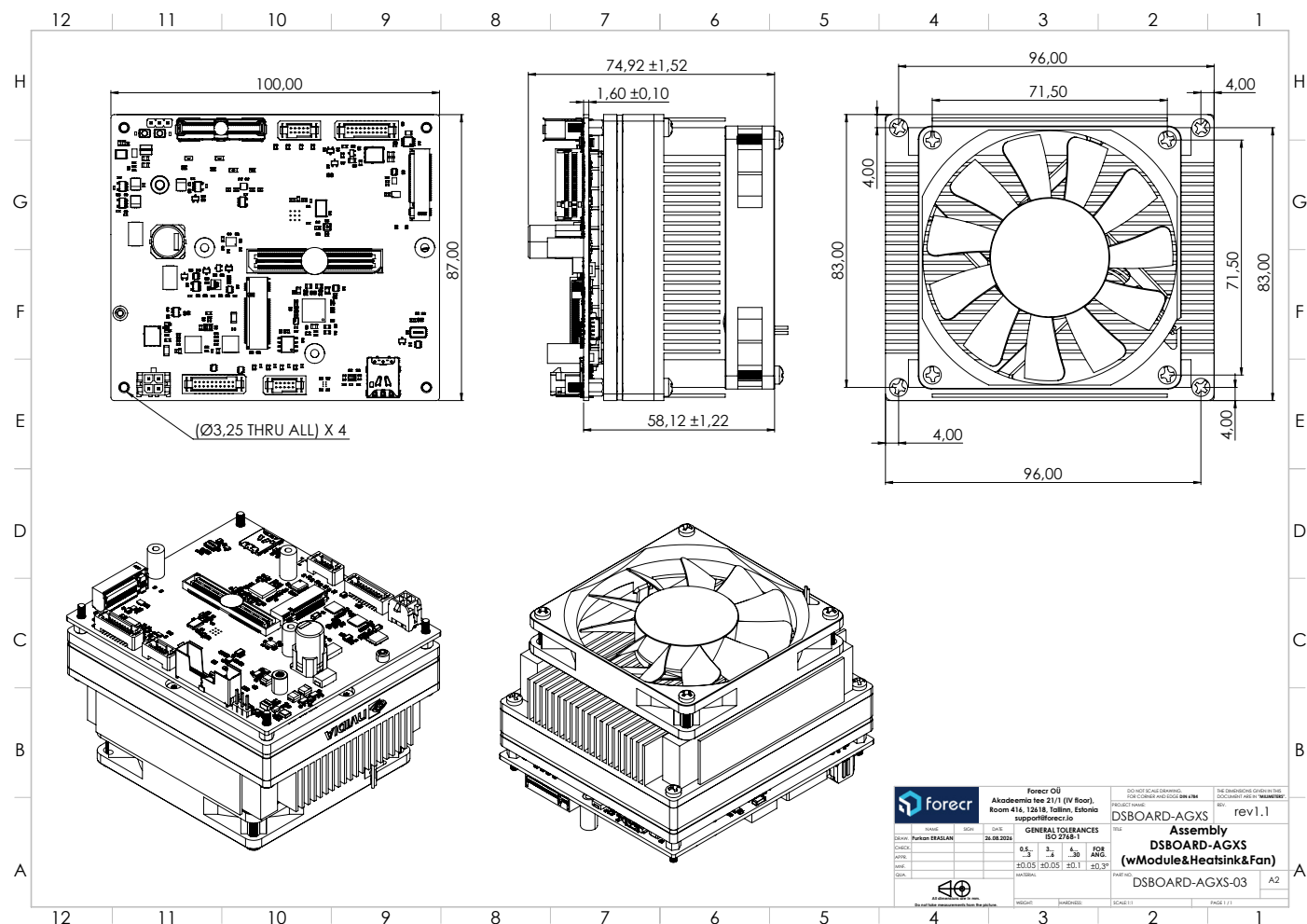
DSBOARD-AGXS with Jetson AGX Orin Module



DSBOARD-AGXS with Jetson AGX Orin Module and Heatsink Integration Details



DSBOARD-AGXS with Jetson AGX Orin Module, Heatsink and Thermal Integration Details



7. Power Consumption

7.1 AGX Orin 32GB

Power Supply: 24V-4A

All CPU and GPU cores are %100 loaded.

	Power Up Sequence	Idle	Standby (Suspend mode)	15W (4 core)	30W (8 core)	40W (8 core)	MAXN (8 core)
Current (A)	0.93	0.32	0.04	0.65	1	1.44	1.91
Power (W)	22.32	7.68	0.96	15.6	24	34.56	45.84

7.2 AGX Orin 64GB

Power Supply: 24V-4A

All CPU and GPU cores are %100 loaded.

	Power Up Sequence	Idle	Standby (Suspend mode)	15W (4 core)	30W (8 core)	50W (12 core)	MAXN (12 core)
Current (A)	1,39	0.33	0.07	0.69	1.04	1.57	2.92
Power (W)	33.36	7.92	1.68	16.56	24.96	37.68	70.08

7.3 AGX Orin Industrial

Power Supply: 24V-4A

All CPU and GPU cores are %100 loaded.

	Power Up Sequence	Idle	Standby (Suspend mode)	15W (4 core)	35W (8 core)	60W (12 core)	MAXN (12 core)
Current (A)	1.49	0.53	0.05	0.8	1.15	1.84	2.91
Power (W)	35.76	12.72	1.2	19.2	27.6	44.16	69.84

8. MTBF Prediction

Methodology	Telcordia SR-332 (Parts Count) *Preliminary
Operating Environment	Ground Benign (GB), Controlled
Ambient Temperature	25 °C
Board Failure Rate	0.450 failures / 10 ⁶ hours
MTBF	2220387 (Hours), 253.47 (Years)

Methodology	Telcordia SR-332 (Parts Count) *Preliminary
Operating Environment	Ground Fixed (GF), Uncontrolled
Ambient Temperature	40 °C
Board Failure Rate	1.732 failures / 10 ⁶ hours
MTBF	577301 (Hours), 65.90 (Years)

9. Accessories

	Description
	Meanwell 90W / 24V Power Adapter - Power cable

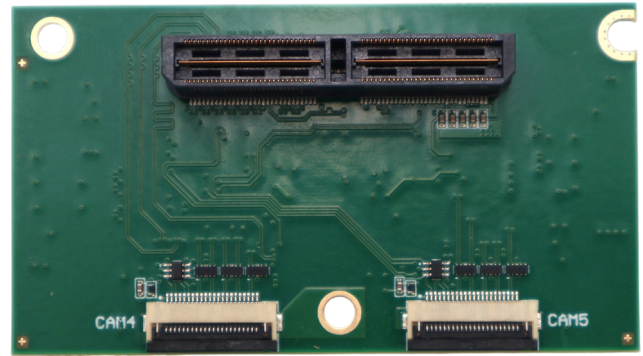
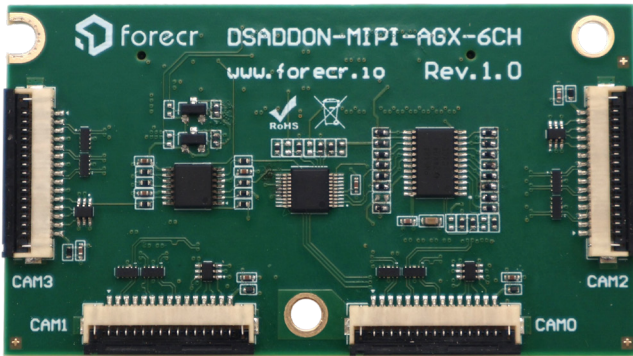
10. Add-On Boards

10.1 6-Channel MIPI Add-On Board

Our 6-channel MIPI CSI add-on board breaks out the camera expansion signals into six onboard FFC/FPC connectors:

4× 15-pin (1.0 mm pitch): Supports 2-lane MIPI CSI configurations.

2× 22-pin (0.5 mm pitch): Supports both 2-lane and 4-lane MIPI CSI configurations with a compatible cable.



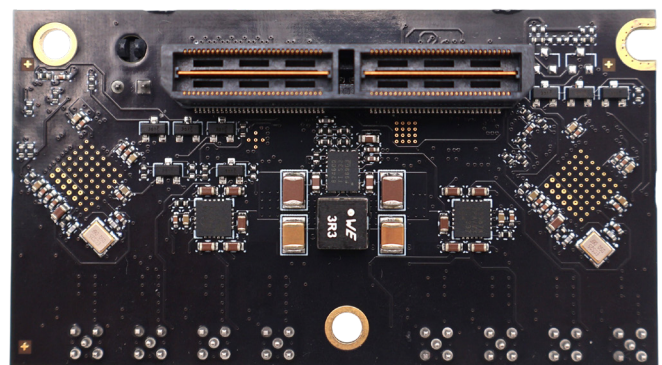
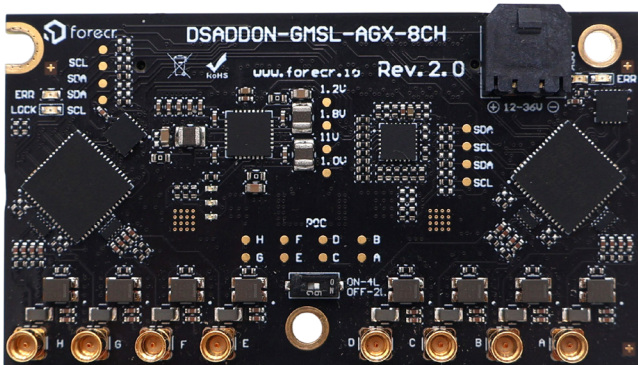
10.2 8-Channel GMSL Add-On Board

8-Channel GMSL2 Support: Features dual MAX96712 quad-channel deserializers, enabling up to 8× GMSL2 camera inputs.

Flexible Lane Configuration: Hardware-configurable for 2-lane or 4-lane MIPI modes via an onboard DIP switch (Hardware Rev 1.1 or later).

Smart Power over Coax (PoC): Supplies up to 11V @ 600mA per channel with integrated I²C-controlled current limiters for per-channel power monitoring and complete channel shutdown.

External Power Input: Requires external power connection. Input range is 12-36V DC.



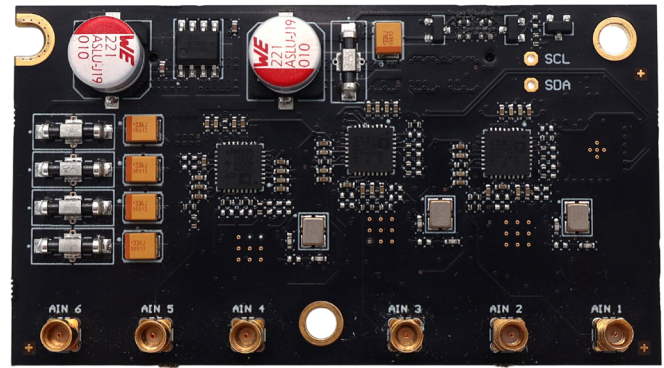
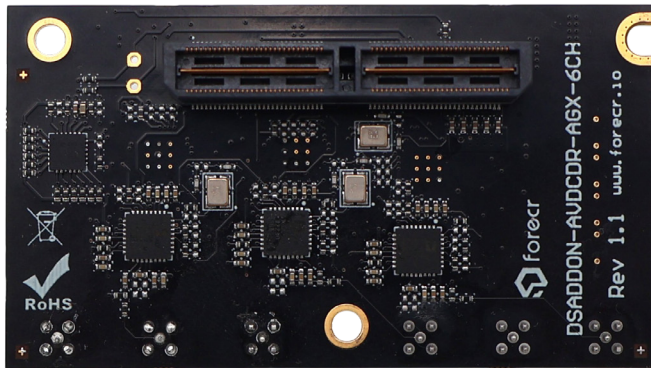
10.3 6 Channel AVdecoder Add-On Board

This board captures up to six analog video inputs simultaneously using dedicated hardware decoders, delivering clean digital streams directly to the NVIDIA Jetson SOM:

Simultaneous Inputs: Supports up to 6× concurrent CVBS (composite) analog video channels.

Auto-Detection: Automatically recognizes standard NTSC, PAL, and SECAM formats.

Direct Jetson Link: Routes all six streams concurrently over independent MIPI CSI-2 interfaces.



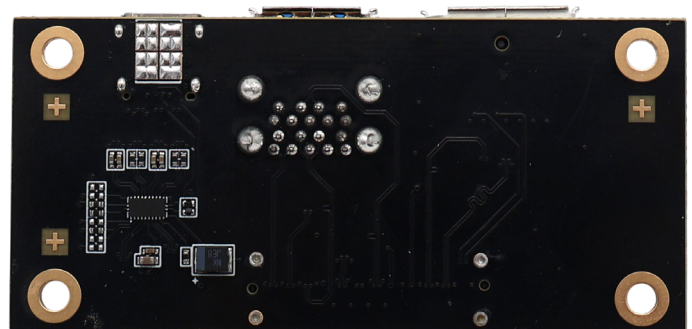
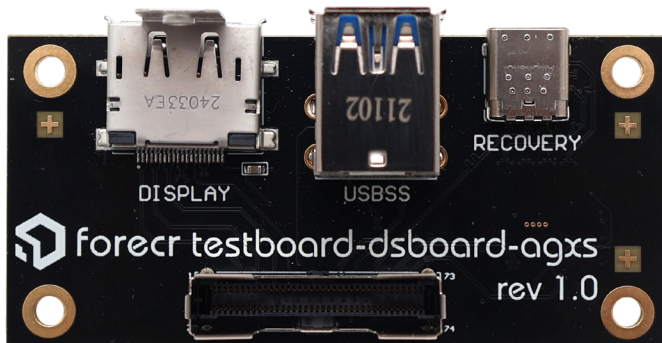
10.4 Testboard Breakout Board

Testboard breaks out the high-speed signals from the J1700 connector into standard PC-style interfaces:

DisplayPort: Routed to a standard, full-size DisplayPort connector.

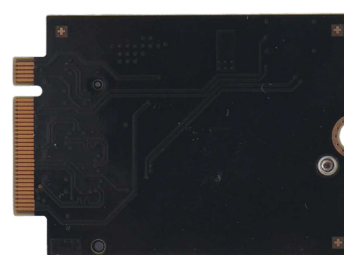
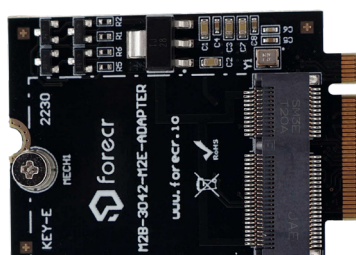
Recovery USB: Routed to a screw-lock USB Type-C connector. This port supports both host mode operation and recovery mode for flashing the NVIDIA Jetson SOM.

SuperSpeed USB: Two USB SuperSpeed signal lanes are broken out to independent USB Type-A receptacles.



10.5 Key-B to Key-E Adapter Board

Plugs into the onboard M.2 Key-B 3042 slot to convert it into an M.2 Key-E 2230 slot, enabling seamless integration of standard Wi-Fi and Bluetooth cards.



11. Ordering Information

