IOT-GATE-iMX8

Reference Guide

Compulab

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Table 1 Document Revision Notes

Date	Description
May 2020	• First release
June 2020	• Added P41 pin-out table in section 5.9 • Added connector pin numbering in sections 5.4 and 5.10
August 2020	• Added industrial I/O add-on sections 3.10 and 5.10
September 2020	• Fixed LED GPIO number in section 5.12
February 2021	• Removed legacy section
October 2021	• Updated supported CAN modes in section 3.10.2 • Fixed antenna connector type in section 5.12
March 2022	• Added PoE add-on description in sections 3.11 and 5.13
January 2023	• Added 4–20mA input add-on description in sections 3.10, 3.10.5 and 5.10 • Updated left side panel drawing in section 5.1.3 • Updated digital output wiring diagram in section 3.10.4 • Added digital I/O operating conditions in section 3.10.4
February 2023	• Added typical power consumption in section 7.3 • Corrected antenna connector assignment table in section 5.12

1 INTRODUCTION

1.1 About This Document

This document is part of a set of documents providing information necessary to operate and program Compulab IOT-GATE-iMX8.

1.2 Related Documents

For additional information not covered in this manual, please refer to the documents listed in Table 2.

Table 2 Related Documents

Document	Location
IOT-GATE-iMX8 design resources	https://www.compulab.com/products/iot-gateways/iot-gate-imx8-industrial-arm-iot-gateway/#devres

2 OVERVIEW

2.1 Highlights

- NXP i.MX8M Mini CPU, quad-core Cortex-A53
- Up-to 4GB RAM and 128GB eMMC
- LTE modem, WiFi ac, Bluetooth 5.1
- 2x Ethernet, 3x USB2, RS485 / RS232, CAN-FD
- Custom I/O expansion boards
- Fanless design in aluminum, rugged housing
- Designed for reliability and 24/7 operation
- Wide temperature range of -40C to 80C
- 5 year warranty and 15 year availability
- Wide input voltage range of 8V to 36V
- Debian Linux and Yocto Project

2.2 Specifications

Table 3 CPU, RAM and Storage

Feature	Specifications
CPU	NXP i.MX8M Mini, quad-core ARM Cortex-A53, 1.8GHz
Real-Time Co-processor	ARM Cortex-M4
RAM	1GB – 4GB, LPDDR4
Primary Storage	4GB - 64GB eMMC flash, soldered on-board
Secondary Storage	16GB - 64GB eMMC flash, optional module

Table 4 Network

Feature	Specifications
LAN	1x 1000Mbps Ethernet port, RJ45 connector
	1x 100Mbps Ethernet port, RJ45 connector
WiFi	802.11ac WiFi interface Intel WiFi 6 AX200 module
Bluetooth	Bluetooth 5.1 BLE Intel WiFi 6 AX200 module
Cellular	4G/LTE CAT1 cellular module, Simcom SIM7600G * via mini-PCie socket
	On-board micro-SIM card socket
GNSS	GPS / GLONASS Implemented with Simcom SIM7600G module

Table 5 I/O and System

Feature	Specifications
PCI Express	Primary mini-PCIe socket, full-size * used for WiFi/BT module when “WB” option is present
	Secondary mini-PCIe socket, USB only, full-size * used for cellular modem when “JS7600G” option is present
USB	3x USB2.0 ports, type-A connectors
Serial	1x RS485 (half-duplex) / RS232 port, terminal-block
	1x serial console via UART-to-USB bridge, micro-USB connector
I/O Expansion Module	Up-to 2x CAN-FD / RS485 / RS232, isolated, terminal-block connector
	4x digital inputs + 4x digital outputs, isolated, terminal-block connector
Expansion	Expansion connector for add-on boards 2x SPI, 2x UART, I2C, 12x GPIO
Security	Secure boot, implemented with i.MX8M Mini HAB module
RTC	Real time clock operated from on-board coin-cell battery

Table 6 Electrical, Mechanical and Environmental

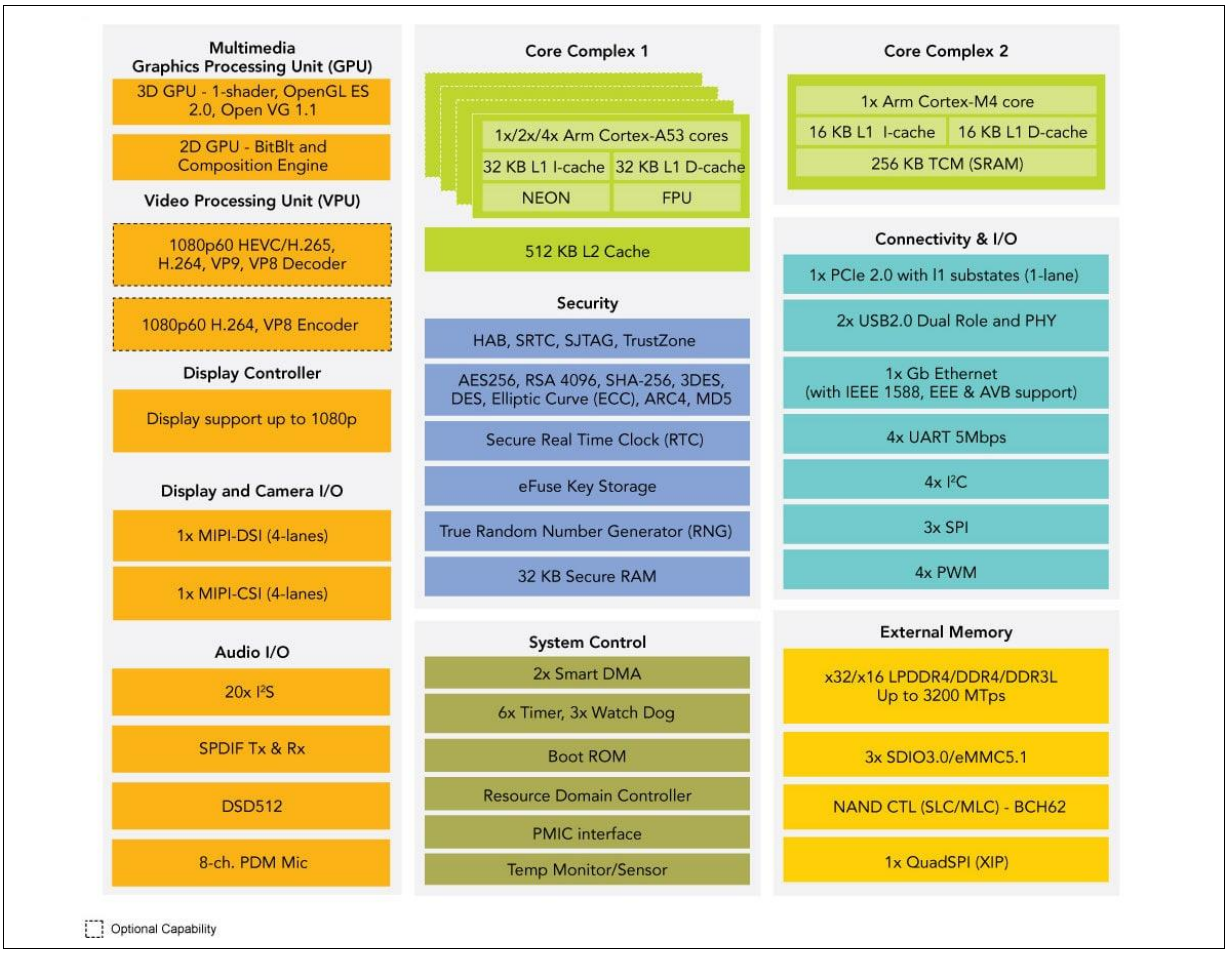
Supply Voltage	Unregulated 8V to 36V
Power Consumption	2W - 7W, depending on system load and configuration
Dimensions	112 x 84 x 25 mm
Enclosure Material	Aluminum housing
Cooling	Passive cooling, fanless design
Weight	450 grams
MTTF	> 200,000 hours
Operation temperature	Commercial: 0° to 60° C Extended: -20° to 60° C Industrial: -40° to 80° C

3 CORE SYSTEM COMPONENTS

3.1 NXP i.MX8M Mini SoC

The NXP i.MX8M Mini family of processors features advanced implementation of a quad ARM® Cortex®-A53 core, which operates at speeds of up to 1.8 GHz. A general purpose Cortex®-M4 core processor enables low-power processing.

Figure 1 i.MX8M Mini Block Diagram



3.2 System Memory

3.2.1 DRAM

IOT-GATE-iMX8 is available with up-to 4GB of on-board LPDDR4 memory.

3.2.2 Primary Storage

IOT-GATE-iMX8 features up-to 64GB of soldered on-board eMMC memory for storing the boot-loader and operating system (kernel and root filesystem). The remaining eMMC space can be used to store general purpose (user) data.

3.2.3 Secondary Storage

IOT-GATE-iMX8 features an optional eMMC module which allows to expand the system non-volatile memory for storing additional data, back-up of the primary storage or installation of a secondary operating system. The eMMC module is installed in socket P14.

3.3 WiFi and Bluetooth

IOT-GATE-iMX8 can be optionally assembled with the Intel WiFi 6 AX200 module providing 2x2 WiFi 802.11ax and Bluetooth 5.1 interfaces.

AX200 module is assembled in mini-PCIe socket #1 (P6).

WiFi / Bluetooth antenna connections are available via RP-SMA connectors on IOT-GATE-iMX8 side panel.

3.4 Cellular and GPS

IOT-GATE-iMX8 cellular interface is implemented with a mini-PCIe modem module and a micro-SIM socket. In order to setup IOT-GATE-iMX8 for cellular functionality install an active SIM card into micro-SIM socket P12. The cellular module should be installed into mini-PCIe socket P8.

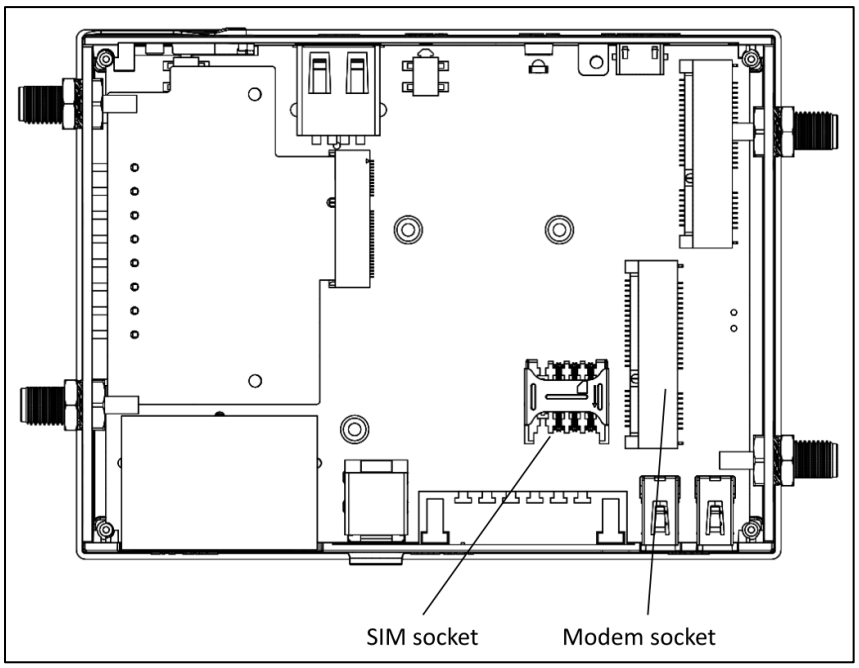
The cellular modem module also implements GNNS / GPS.

Modem antenna connections are available via RP-SMA connectors on IOT-GATE-iMX8 side panel.

CompuLab supplies IOT-GATE-iMX8 with the following cellular modem options:

- 4G/LTE CAT1 module, Simcom SIM7600G (global bands)

Figure 2 service bay - cellular modem



3.5 Ethernet

IOT-GATE-iMX8 incorporates two Ethernet ports:

- ETH1 - primary 1000Mbps port implemented with i.MX8M Mini MAC and Atheros AR8033 PHY
- ETH2 – secondary 100Mbps port implemented with Microchip LAN9514 controller

The Ethernet ports are available on dual RJ45 connector P46.

3.6 USB 2.0

IOT-GATE-iMX8 features three external USB2.0 host ports. The ports are routed to USB connectors P3, P4 and J4. Front panel USB port (J4) is implemented directly with the i.MX8M Mini native USB interface. Back panel ports (P3, P4) are implemented with the on-board USB hub.

3.7 RS485 / RS232

IOT-GATE-iMX8 features a user configurable RS485 / RS232 port implemented with the SP330 transceiver connected to NXP i.MX8M Mini UART port. Port signals are routed to terminal block connector P7.

3.8 Serial Debug Console

IOT-GATE-IMX8 features a serial debug console via UART-to-USB bridge over micro USB connector P5. CP2104 UART-to-USB bridge is interfaced with i.MX8M Mini UART port. CP2104 USB signals are routed to micro USB connector located on the front panel.

3.9 I/O Expansion Socket

IOT-GATE-iMX8 expansion interface is available on M.2 Key-E socket P41. The expansion connector allows to integrate custom I/O add-on boards into IOT-GATE-iMX8. The expansion connector features a set of embedded interfaces such as I2C, SPI, UART and GPIOs. All the interfaces are derived directly from the i.MX8M Mini SoC.

3.10 Industrial I/O add-on

IOT-GATE-iMX8 can be optionally assembled with the industrial I/O add-on board installed into the I/O expansion socket. The industrial I/O add-on features up-to three separate I/O modules which allow to implement different combinations of isolated CAN, RS485, RS232, digital outputs and inputs. The following table shows the supported I/O combinations and ordering codes.

Table 7 Industrial I/O add-on – supported combinations

	Function	Ordering Code
I/O module A	RS232 (rx/tx)	FARS2
	RS485 (2-wire)	FARS4
	CAN-FD	FACAN
	4–20mA input	FACL42
I/O module B	RS232 (rx/tx)	FBRS2
	RS485 (2-wire)	FBRS4
	CAN-FD	FBCAN
	4–20mA input	FBCL42
I/O module C	4x DI + 4x DO	FCDIO

Combination examples:

- For 2x RS485 the ordering code will be IOTG-IMX8-…-FARS4-FBRS4-…
- For RS485 + CAN + 4xDI+4xDO ordering code will be IOTG-IMX8-…-FARS4-FBCAN-FCDIO-…

For connector details please refer to section 5.10

3.10.1 RS485

RS485 function is implemented with MAX13488 transceiver interfaced with i.MX8M-Mini UART port. Key characteristics:

- 2-wire, half-duplex
- Galvanic isolation from main unit and other I/O modules
- Programmable baud rate of up-to 4Mbps
- Software controlled 120ohm termination resistor

3.10.2 CAN-FD

CAN function is implemented with MCP2518FD controller interfaced with i.MX8M-Mini SPI port.

- Supports CAN 2.0A, CAN 2.0B and CAN FD modes
- Galvanic isolation from main unit and other I/O modules
- Data rate of up to 8Mbps

3.10.3 RS232

RS232 function is implemented with MAX3221 (or compatible) transceiver interfaced with i.MX8M-Mini UART port. Key characteristics:

- RX/TX only
- Galvanic isolation from main unit and other I/O modules
- Programmable baud rate of up-to 250kbps

3.10.4 Digital inputs and outputs

Four digital inputs are implemented with the CLT3-4B digital termination in accordance with EN 61131-2. Four digital outputs are implemented with the VNI4140K solid state relay in accordance with EN 61131-2. Key characteristics:

- Designed for 24V PLC applicaitons
- Galvanic isolation from main unit and other I/O modules
- Digital outputs maximal output current – 0.5A per channel

Table 8 Digital I/O Operating Conditions

Parameter	Description	Min	Typ.	Max	Unit
24V_IN	External power supply voltage	12	24	30	V
VIN Low	Maximal input voltage recongnized as LOW			4	V
VIN High	Minimal input voltage recognized as HIGH	6			V

Figure 3 Digital output – typical wiring example

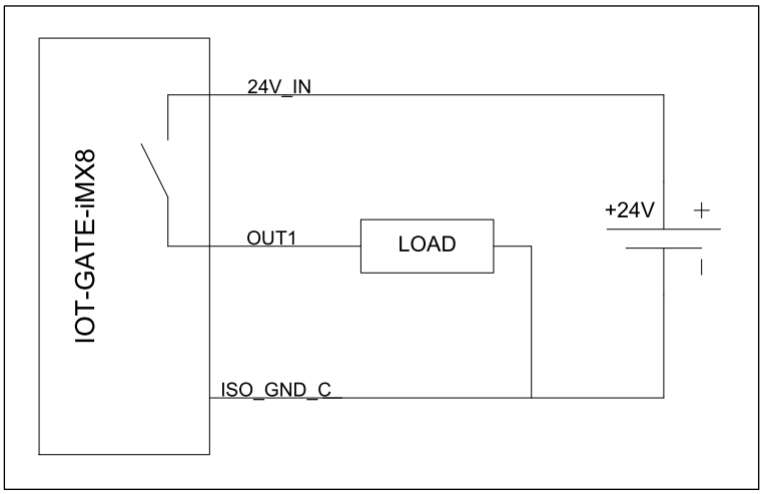
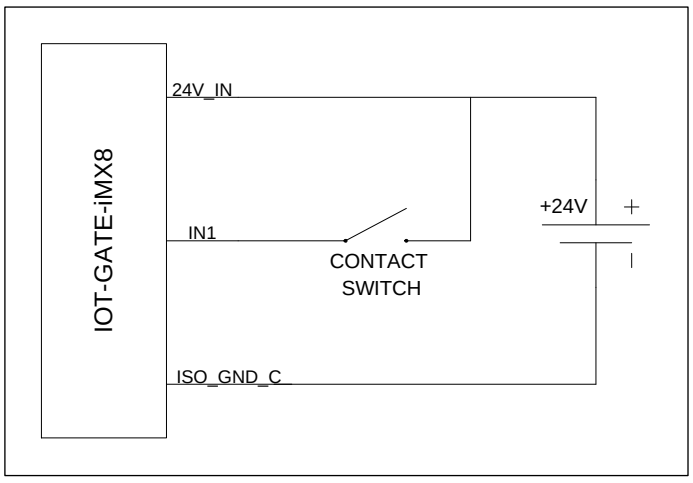


Figure 4 Digital input – typical wiring example

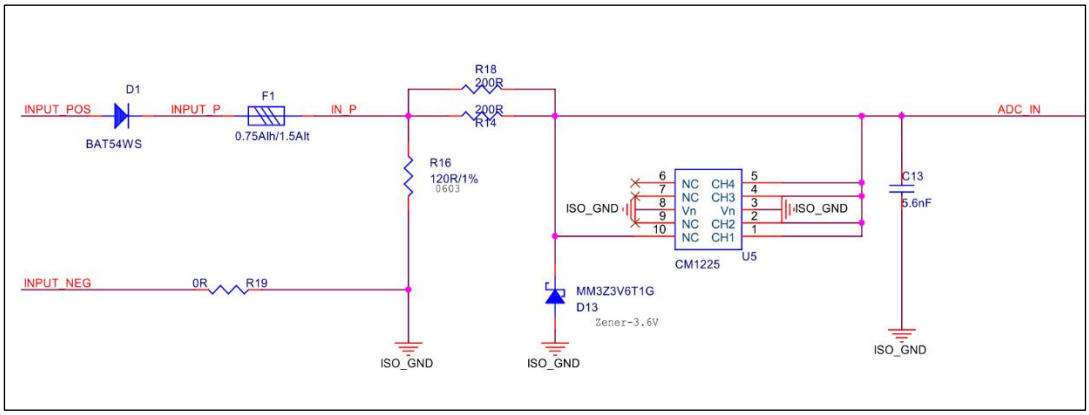


3.10.5 4–20mA input

4–20mA input is implemented with Maxim MAX11108 12-bit ADC.

The ADC is isolated from IOT-GATE-IMX8 main unit. The ADC input circuit is shown in the figure below.

Figure 5 4–20mA input – ADC input circuit



3.11 PoE add-on add-on

IOT-GATE-iMX8 can be optionally assembled with a PoE add-on board installed into the I/O expansion socket. The PoE add-on implements an additional 100Mbit Ethernet port with PoE device capability. When assembled with PoE add-on (configuration option “FPOE”), IOT-GATE-iMX8 can be powered from a POE PSE enabled network cable.

The PoE add-on Ethernet port is implemented using Microchip LAN9500A controller.

Equipped with the PoE add-on, IOT-GATE-iMX8 is an IEEE 802.3af class device that can accept up to 13.5W from the network cable. POE PD is implemented with ON semiconductors NCP1090.

NOTE: PoE add-on uses the I/O expansion socket. PoE add-on cannot be combined with the industrial I/O add-on or any other add-on boards.

NOTE: PoE add-on Ethernet controller uses one of the system USB ports. When PoE add-on is present, back panel USB connector P4 is disabled.

4 SYSTEM LOGIC

4.1 Power Subsystem

4.1.1 Power Rails

IOT-GATE-iMX8 is powered with a single power rail with input voltage range of 8V to 36V.

4.1.2 Power Modes

IOT-GATE-iMX8 supports two hardware power modes.

Table 9 Power modes

Power Mode	Description
ON	All internal power rails are enabled. Mode entered automatically when main power supply is connected.
OFF	i.MX8M Mini core power rails are off, most of the peripherals power rails are off.

4.1.3 RTC Back-Up Battery

IOT-GATE-iMX8 features a 120mAh coin cell lithium battery, which maintains the on-board RTC whenever the main power supply is not present.

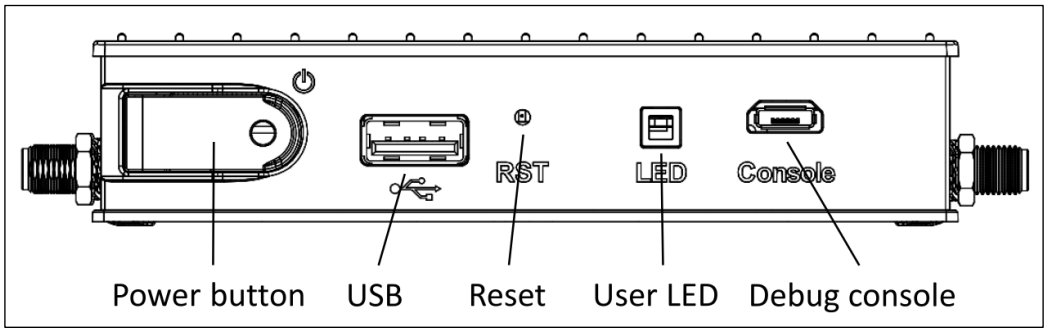
4.2 Real Time Clock

The IOT-GATE-iMX8 RTC is implemented with the AM1805 real time clock (RTC). The RTC is connected to the i.MX8M SoC using I2C2 interface at address 0xD2/D3. IOT-GATE-iMX8 backup battery keeps the RTC running to maintain clock and time information whenever the main power supply is not present.

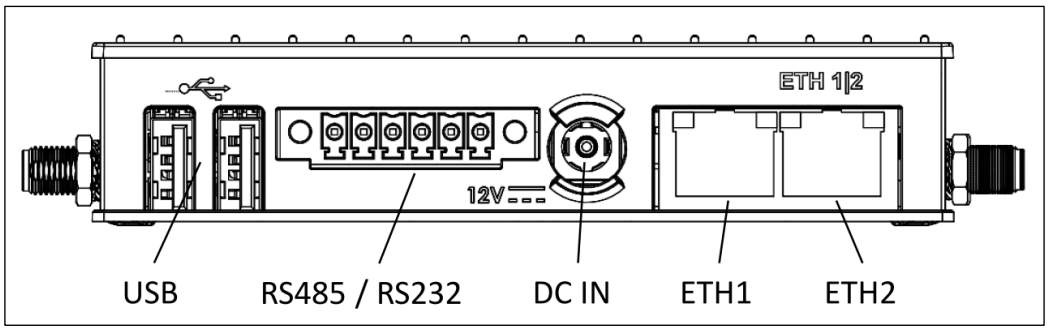
5 INTERFACES AND CONNECTORS

5.1 Connector Locations

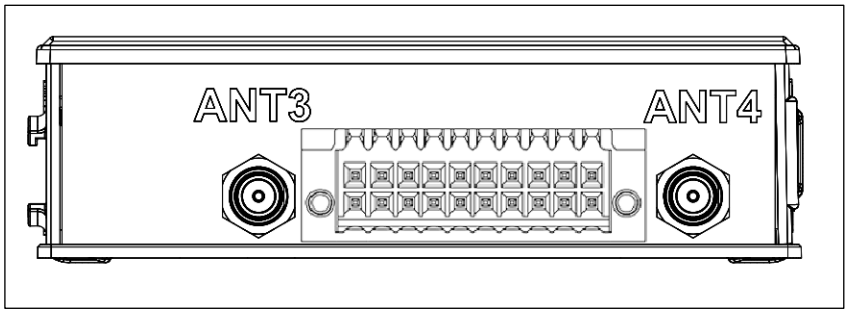
5.1.1 Front Panel



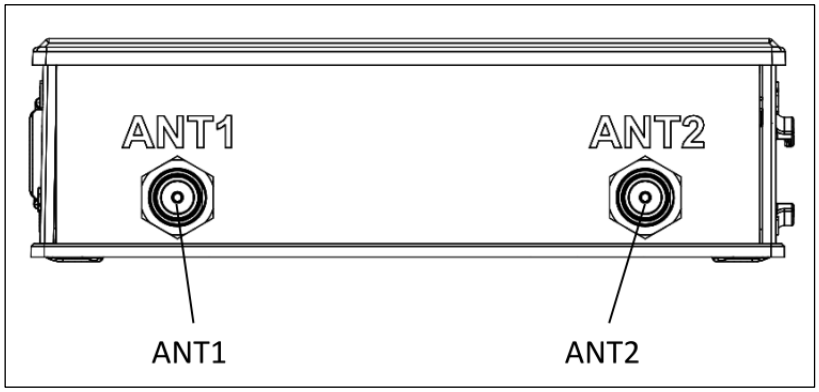
5.1.2 Back Panel



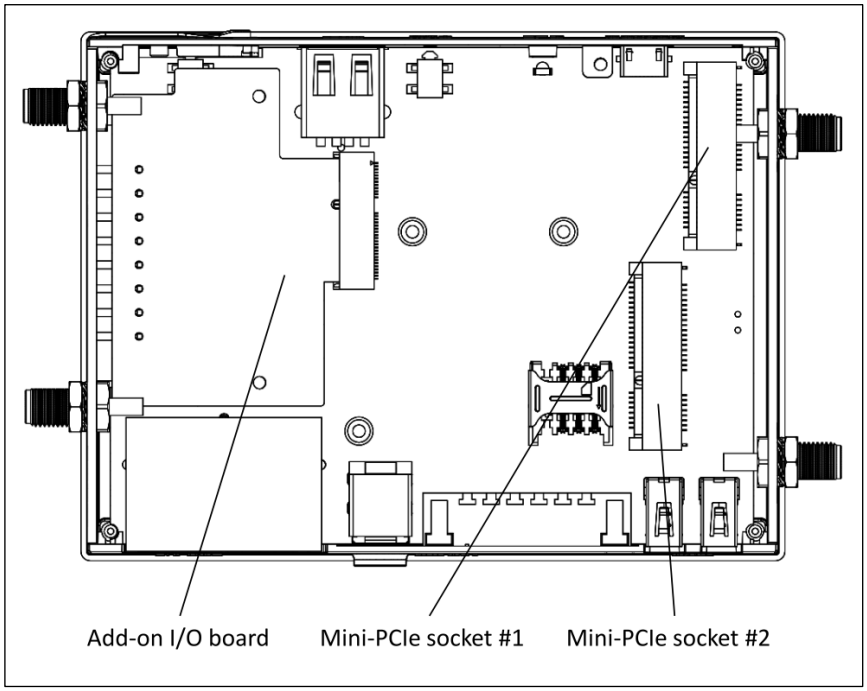
5.1.3 Left Side Panel



5.1.4 Right Side Panel



5.1.5 Service Bay



5.2 DC Power Jack (J1)

DC power input connector.

Table 10 J1 connector pin-out

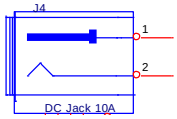
Pin	Signal Name	
1	DC IN	
2	GND	

Table 11 J1 connector data

Manufacturer	Mfg. P/N
Contact Technology	DC-081HS(-2.5)

The connector is compatible with the IOT-GATE-iMX8 power supply unit available from CompuLab.

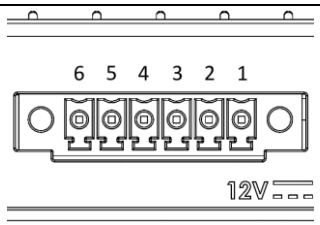
5.3 USB Host Connectors (J4, P3, P4)

The IOT-GATE-iMX8 external USB2.0 host ports are available through three standard type-A USB connectors (J4, P3, P4). For additional details, please refer to section 3.6 of this document.

5.4 RS485 / RS232 Connector (P7)

IOT-GATE-iMX8 features configurable RS485 / RS232 interface routed to terminal block P7. RS485 / RS232 operation mode is controlled in software. For additional details please refer to IOT-GATE-iMX8 Linux documentation.

Table 12 P7 connector pin-out

Pin	RS485 mode	RS232 mode	Pin numbering
1	RS485_NEG	RS232_TXD	
2	RS485_POS	RS232_RTS	
3	GND	GND	
4	NC	RS232_CTS	
5	NC	RS232_RXD	
6	GND	GND	

5.5 Serial Debug Console (P5)

The IOT-GATE-iMX8 serial debug console interface is routed to micro USB connector P5. For more information, please refer to section 3.8 of this documents.

5.6 RJ45 Dual Ethernet Connector (P46)

The IOT-GATE-iMX8 two Ethernet ports are routed to dual RJ45 connector P46. For additional details, please refer to section 3.5 of this document.

5.7 uSIM socket (P12)

The uSIM socket (P12) is connected to mini-PCIe socket P8.

5.8 Mini-PCIe Sockets (P6, P8)

IOT-GATE-iMX8 features two mini-PCIe sockets (P6, P8) which implement different interfaces and are intended to different functions.

- Mini-PCIe socket #1 is mainly intended for WiFi modules that require PCIe interface
- Mini-PCIe socket #2 is mainly intended for cellular modems and LORA modules

Table 13 mini-PCIe socket interfaces

Interface	mini-PCIe socket #1 (P6)	mini-PCIe socket #2 (P8)
PCIe	Yes	No
USB	Yes	Yes
SIM	No	Yes

NOTE: Mini-PCIe socket #2 (P8) does not feature PCIe interface.

5.9 I/O Expansion Connector (P41)

IOT-GATE-iMX8 I/O expansion connector P41 allows to connect add-on boards to IOT-GATE-iMX8. Some of the P41 signal are derived from i.MX8M Mini multifunctional pins. The following table outlines the connector pin-out and available pin functions.

NOTE: Multifunctional pin function selection is controlled in software.

NOTE: Each multifunctional pin can be used for a single function at a time.

NOTE: Only one pin can be used for each function (in case a function is available on more than one carrier board interface pin).

Table 14 P41 connector pin-out

Pin	Singal name	Description
1	GND	IOT-GATE-iMX8 common ground
2	VCC_3V3	IOT-GATE-iMX8 3.3V power rail
3	EXT_HUSB_DP3	Optional USB port positive data signal. Multiplexed with back-panel connector P4
4	VCC_3V3	IOT-GATE-iMX8 3.3V power rail
5	EXT_HUSB_DN3	Optional USB port negative data signal. Multiplexed with back-panel connector P4.
6	RESERVED	Reserved for future use. Must be left unconnected
7	GND	IOT-GATE-iMX8 common ground
8	RESERVED	Reserved for future use. Must be left unconnected
9	JTAG_NTRST	Processor JTAG interface. Test reset signal.
10	RESERVED	Reserved for future use. Must be left unconnected.
11	JTAG_TMS	Processor JTAG interface. Test mode select signal.
12	VCC_SOM	IOT-GATE-iMX8 3.7V power rail
13	JTAG_TDO	Processor JTAG interface. Test data out signal.
14	VCC_SOM	IOT-GATE-iMX8 3.7V power rail
15	JTAG_TDI	Processor JTAG interface. Test data in signal.

16	RESERVED	Reserved for future use. Must be left unconnected.
17	JTAG_TCK	Processor JTAG interface. Test clock signal.
18	RESERVED	Reserved for future use. Must be left unconnected.
19	JTAG_MOD	Processor JTAG interface. JTAG mode signal.
20	RESERVED	Reserved for future use. Must be left unconnected.
21	VCC_5V	IOT-GATE-iMX8 5V power rail
22	RESERVED	Reserved for future use. Must be left unconnected.
23	VCC_5V	IOT-GATE-iMX8 5V power rail
32	RESERVED	Reserved for future use. Must be left unconnected.
33	QSPIA_DATA3	Multifunctional signal. Available functions: QSPIA_DATA3, GPIO3_IO[9]
34	RESERVED	Reserved for future use. Must be left unconnected.
35	QSPIA_DATA2	Multifunctional signal. Available functions: QSPI_A_DATA2, GPIO3_IO[8]
36	ECSPI2_MISO/UART4_CTS	Multifunctional signal. Available functions: ECSPI2_MISO, UART4_CTS, GPIO5_IO[12]
37	QSPIA_DATA1	Multifunctional signal. Available functions: QSPI_A_DATA1, GPIO3_IO[7]
38	ECSPI2_SS0/UART4_RTS	Multifunctional signal. Available functions: ECSPI2_SS0, UART4_RTS, GPIO5_IO[13]
39	QSPIA_DATA0	Multifunctional signal. Available functions: QSPI_A_DATA0, GPIO3_IO[6]
40	ECSPI2_SCLK/UART4_RX	Multifunctional signal. Available functions: ECSPI2_SCLK, UART4_RXD, GPIO5_IO[10]
41	QSPIA_NSS0	Multifunctional signal. Available functions: QSPI_A_SS0_B, GPIO3_IO[1]
42	ECSPI2_MOSI/UART4_TX	Multifunctional signal. Available functions: ECSPI2_MOSI, UART4_TXD, GPIO5_IO[11]
43	QSPIA_SCLK	Multifunctional signal. Available functions: QSPI_A_SCLK, GPIO3_IO[0]
44	VCC_SOM	IOT-GATE-iMX8 3.7V power rail
45	GND	IOT-GATE-iMX8 common ground
46	VCC_SOM	IOT-GATE-iMX8 3.7V power rail
47	DSI_DN3	MIPI-DSI, data diff-pair #3 negative
48	I2C4_SCL_CM	Multifunctional signal. Available functions: I2C4_SCL, PWM2_OUT, GPIO5_IO[20]
49	DSI_DP3	MIPI-DSI, data diff-pair #3 positive
50	I2C4_SDA_CM	Multifunctional signal. Available functions: I2C4_SDA, PWM1_OUT, GPIO5_IO[21]
51	GND	IOT-GATE-iMX8 common ground
52	SAI3_TXC	Multifunctional signal. Available functions: GPT1_COMPARE2, UART2_TXD, GPIO5_IO[0]
53	DSI_DN2	MIPI-DSI, data diff-pair #2 negative
54	SAI3_TXFS	Multifunctional signal. Available functions: GPT1_CAPTURE2, UART2_RXD, GPIO4_IO[31]
55	DSI_DP2	MIPI-DSI, data diff-pair #2 positive
56	UART4_TXD	Multifunctional signal. Available functions: UART4_TXD, UART2_RTS, GPIO5_IO[29]
57	GND	IOT-GATE-iMX8 common ground
58	UART2_RXD/ECSPI3_MISO	Multifunctional signal. Available functions: UART2_RXD, ECSPI3_MISO, GPIO5_IO[24]
59	DSI_DN1	MIPI-DSI, data diff-pair #1 negative
60	UART2_TXD/ECSPI3_SS0	Multifunctional signal. Available functions: UART2_TXD, ECSPI3_SS0, GPIO5_IO[25]
61	DSI_DP1	MIPI-DSI, data diff-pair #1 positive
62	RESERVED	Reserved for future use. Must be left unconnected.

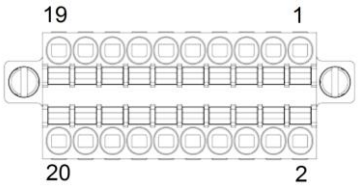
63	GND	IOT-GATE-iMX8 common ground
64	RESERVED	Reserved for future use. Must be left unconnected.
65	DSI_DN0	MIPI-DSI, data diff-pair #0 negative
66	UART4_RXD	Multifunctional signal. Available functions: UART4_RXD, UART2_CTS, GPIO5_IO[28]
67	DSI_DP0	MIPI-DSI, data diff-pair #0 positive
68	ECSPI3_SCLK	Multifunctional signal. Available functions: ECSPI3_SCLK, GPIO5_IO[22]
69	GND	IOT-GATE-iMX8 common ground
70	ECSPI3_MOSI	Multifunctional signal. Available functions: ECSPI3_MOSI, GPIO5_IO[23]
71	DSI_CKN	MIPI-DSI, clock diff-pair negative
72	EXT_PWRBTNn	IOT-GATE-iMX8 ON/OFF signal
73	DSI_CKP	MIPI-DSI, clock diff-pair positive
74	EXT_RESETn	IOT-GATE-iMX8 cold reset signal
75	GND	IOT-GATE-iMX8 common ground

5.10 Industrial I/O add-on board

Table 15 Industrial I/O add-on connector pin-out

I/O module	Pin	Singal
A	1	RS232_TXD / RS485_POS / CAN_H / 4-20_mA_IN+
	2	ISO_GND_A
	3	RS232_RXD / RS485_NEG / CAN_L
	4	NC
	5	4-20_mA_IN-
B	6	4-20_mA_IN-
	7	RS232_TXD / RS485_POS / CAN_H / 4-20_mA_IN+
	8	ISO_GND_B
	9	RS232_RXD / RS485_NEG / CAN_L
	10	NC
C	11	OUT0
	12	OUT2
	13	OUT1
	14	OUT3
	15	IN0
	16	IN2
	17	IN1
	18	IN3
	19	24V_IN
	20	ISO_GND_C

Table 16 Industrial I/O add-on connector data

Connector type	Pin numbering
P/N: Kunacon PDFD25420500K 20-pin dual-raw plug with push-in spring connections Locking: screw flange Pitch: 2.54 mm Wire cross section: AWG 20 – AWG 30	

5.11 Indicator LEDs

The tables below describes IOT-GATE-iMX8 indicator LEDs.

Table 17 Power LED (DS1)

Main power connected	LED state
Yes	On
No	Off

Table 18 User LED (DS4)

General purpose LED (DS4) is controlled by SoC GPIOs GP3_IO19 and GP3_IO25.

GP3_IO19 state	GP3_IO25 state	LED state
Low	Low	Off
Low	High	Green
High	Low	Yellow
High	High	Orange

5.12 Antenna Connectors

IOT-GATE-iMX8 features up-to four RP-SMA connectors for external antennas.

Table 19 Default antenna connector assignment

Connector	Function
ANT1	WiFi-A / BT antenna
ANT2	WiFi-B antenna
ANT3	Modem GNSS antenna
ANT4	Modem MAIN antenna

5.13 PoE add-on RJ45 Ethernet Connector

The IOT-GATE-iMX8 PoE add-on Ethernet port is routed to standard RJ45 connector on the left side panel. For additional details, please refer to section 3.11 of this document.

6 MECHANICAL DRAWINGS

IOT-GATE-iMX8 3D model is available for download at:

https://www.compulab.com/products/iot-gateways/iot-gate-imx8-industrial-arm-iot-gateway/#devres

7 OPERATIONAL CHARACTERISTICS

7.1 Absolute Maximum Ratings

Table 20 Absolute Maximum Ratings

Parameter	Min	Max	Unit
Main power supply voltage	-0.3	40	V

NOTE: Stress beyond Absolute Maximum Ratings may cause permanent damage to the device.

7.2 Recommended Operating Conditions

Table 21 Recommended Operating Conditions

Parameter	Min	Typ.	Max	Unit
Main power supply voltage	8	12	36	V

7.3 Typical Power Consumption

Table 22 IOT-GATE-iMX8 Typical Power Consumption

Use case	Use case description	Current	Power
Linux idle	Linux up, Ethernet up, no activity	220mA	2.6W
Wi-Fi or Ethernet data transfer	Linux up + active ethernet or Wi-Fi data transmission	300mA	3.6W
Cellular modem data transfer	Linux up +active modem data transmission	420mA	5W
Heavy mixed load without cellular activity	CPU and memory stress-test + Wi-Fi running + Bluetooth running + Ethernet activity + LEDs	400mA	4.8W
Heavy mixed load with active cellular modem data transfer	CPU and memory stress-test + active modem data transmission	600mA	7.2W

Power consumption has been measured with the following setup:

1. Configuration - IOTG-IMX8-D4-NA32-WB-JS7600G-FARS4-FBCAN-PS-XL
2. Standard IOT-GATE-IMX8 12VDC PSU
3. Software stack - stock Debian (Bullseye) for IOT-GATE-iMX8 v3.1.2