
AES70 Ethernet Control Module with webserver GPIO user interface

Applications

- *Control and Monitoring*
- *Pro-audio Amplifiers*
- *Distribution Amplifiers*
- *Conference Systems*
- *Networked Microphones*
- *Networked Effects Gear*



Revision History

Version	Date	Description
0.1	03/01/2025	Draft datasheet

Disclaimer

Information provided in this datasheet is believed to be accurate and reliable. However, Profusion assumes no responsibility for its use, nor any infringement of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Profusion. Profusion reserves the right to change circuitry at any time without notice. This document is subject to change without notice.

The software described in this document is furnished under a license agreement and may be used or copied only in accordance with the terms of such a license agreement. It is forbidden by law to copy the software on any medium except as specifically allowed in the license agreement.

Table of Contents

Applications..... 1

Revision History..... 1

Disclaimer..... 1

Table of Contents 2

General Description..... 3

Block Diagram..... 3

Pin Description 4

Application Example 6

Electrical Characteristics..... 7

Layout Considerations 8

Physical Dimensions(mm)..... 9

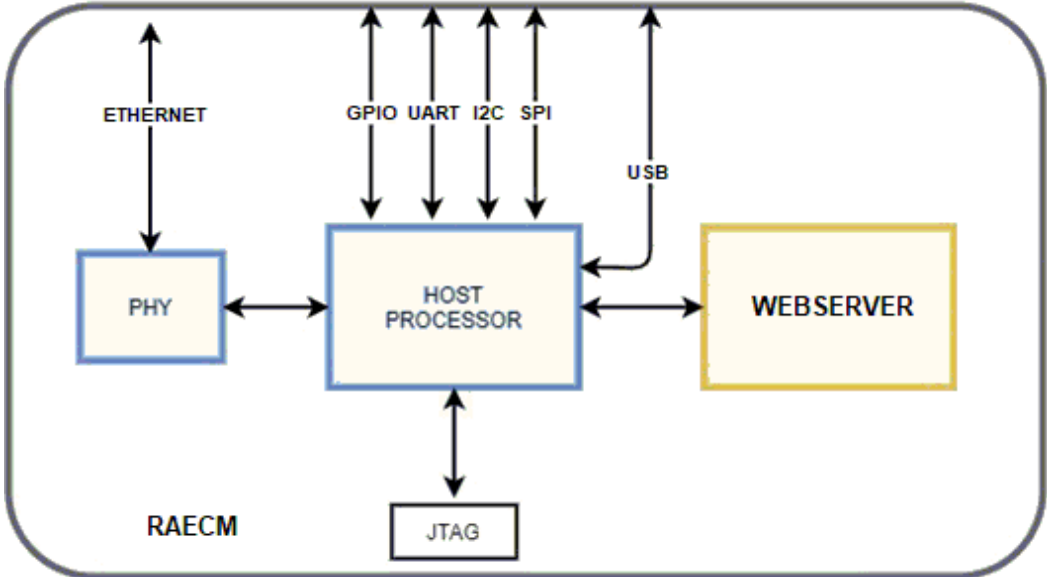
General Description

The Ethernet Control Module from Resolute Audio is a low-cost solution to provide AES70 ethernet control for general purpose input and output to professional or consumer based electronic products. This functionality is accomplished on the ARM Cortex M3 32-bit microcontroller.

The module has 16 general purpose inputs or outputs including two ADC inputs as well as I2C, SPI and serial interfaces. Resolute Audio can provide the module pre-configured with an input/output configuration to suit a custom solution.

Resolute Audio's RAECM is a low-cost compact STM processor module measuring just 38.1mm x 50.8mm designed to be easily configured to provide AES70 networked control and monitoring to your next generation product. The module has castellated pins to provide simple and economical surface mount placement.

Block Diagram



Pin Description

Pin	Net	Pin Description
1	N/A	N/A
2	VDD_3V3	Digital 3V3
3	TRST	Programming Port TRST Pin
4	TMS/SWDIO	Programming Port TMS Pin
5	TCK/SWCLK	Programming Port TCK Pin
6	TDO/SWO	Programming Port TDO Pin
7	TDI	Programming Port TDI Pin
8	GND	Digital Ground
9	SPICK	SPI Interface. Clock
10	MISO	SPI Interface. Master In Slave Out
11	MOSI	SPI Interface. Master Out Slave In
12	SPICS	SPI Interface. Chip Select
13	GND	Digital Ground
14	USART2_TX	Transmit pin of universal synchronous/asynchronous receiver/transmitter(USART). Supports up to 7.5Mbit/s.
15	USART2_RX	Receive pin of universal synchronous/asynchronous receiver/transmitter(USART). Supports up to 7.5Mbit/s.
16	GND	Digital Ground
17	I2C1_SCK	I2C Clock pin
18	I2C1_SDA	I2C Data pin
19	VDD_3V3	Digital 3V3
20	GPIO15	General Purpose Input Output 15
21	GPIO14	General Purpose Input Output 14
22	GPIO13	General Purpose Input Output 13
23	GPIO12	General Purpose Input Output 12
24	GPIO11	General Purpose Input Output 11
25	N/A	N/A
26	N/A	N/A
27	N/A	N/A
28	N/A	N/A
29	N/A	N/A
30	N/A	N/A
31	N/A	N/A
32	N/A	N/A
33	GPIO10/ADC1	General Purpose Input Output 10/ADC Input 1

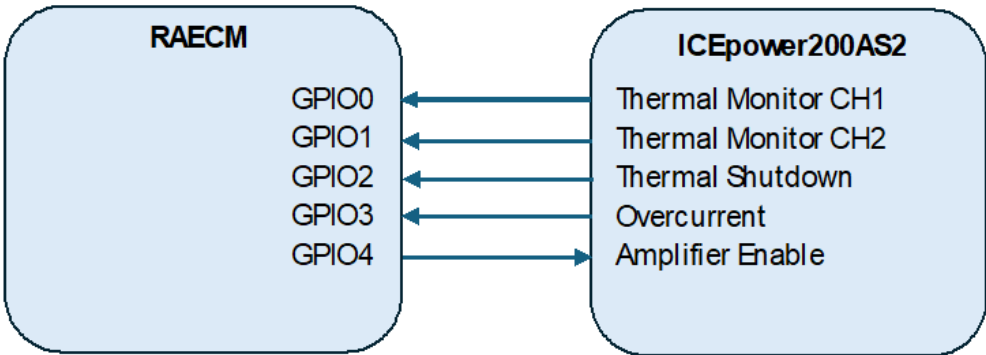
34	GPIO9/ADC2	General Purpose Input Output 9/ADC Input 2
35	GPIO8	General Purpose Input Output 8
36	GPIO7	General Purpose Input Output 7
37	GPIO6	General Purpose Input Output 6
38	GPIO5	General Purpose Input Output 5
39	GPIO4	General Purpose Input Output 4
40	GPIO3	General Purpose Input Output 3
41	GPIO2	General Purpose Input Output 2
42	GPIO1	General Purpose Input Output 1
43	GPIO0	General Purpose Input Output 0
44	GND	Digital Ground
45	VDD_3V3	Digital 3V3
46	GND	Digital Ground
47	RA_ETH_RD_N	Ethernet Receive Negative
48	RA_ETH_RD_P	Ethernet Receive Positive
49	RA_ETH_TD_N	Ethernet Transmit Negative
50	RA_ETH_TD_P	Ethernet Transmit Positive
51	RA_ETH_LED_A	Ethernet LED A
52	RA_ETH_LED_B	Ethernet LED B
53	RESET_RA	Module Reset
54	GND	Digital Ground
55	VDD_3V3	Digital 3V3
56	N/A	N/A
57	N/A	N/A
58	USB_ID	Universal Serial Bus ID Pin
59	USB_DP	Universal Serial Bus Data Positive Pin
60	USB_DM	Universal Serial Bus Data Negative Pin
61	USB_VBUS	Universal Serial Bus VBUS Pin
62	USB_PowerSwitchOn	Universal Serial Bus Power Switch On Pin
63	USB_OverCurrent	Universal Serial Bus Over Current Pin
64	GND	Digital Ground
65	DVDD_IN	+5V Digital Input
66	N/A	N/A

Application Example

The first step in the design process is to specify how the 16 GPIOs and interfaces on the RAECM module are to be utilised:

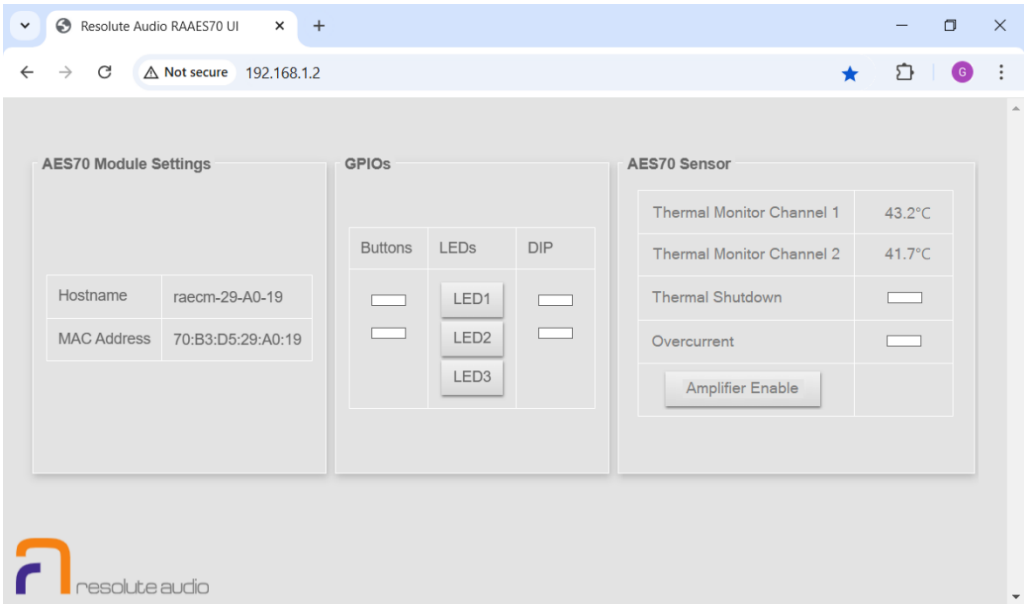
In the case of an existing powered speaker design, the RAECM module could be added to the latest revision to receive feedback from the power amplifier. For example, the [ICEpower200AS2](#) dual channel power amplifier can report two channel temperatures, thermal shutdown and overcurrent states.

The RAECM can be configured to receive this data and display the data either in the form of a local webserver interface or as part of a AES70 discovery tool such as the [aes70explorer](#) from DUESO.



Once a specification is established, Resolute Audio can configure the RAECM module and produce the module pre-programmed ready for use.

For smaller systems a dedicated onboard webserver interface can be provided while for larger systems with many devices it may be practical to use a unified-control system.



Inputs and outputs you have specified are now visible to the AES70 eco-system.

Electrical Characteristics

Measured at ambient temperature 25°C

<i>SYMBOL</i>	<i>PARAMETER</i>	<i>CONDITIONS</i>	<i>Min.</i>	<i>Typ.</i>	<i>Max.</i>	<i>Units</i>
V_s	Input Voltage		4.5	5.0	5.5	V
I_{typ}	Input Current	No Ethernet		60		mA
I_H	Input Current	High load		110	120	mA
t_d	Start-up Delay			4		ms
t_r	Reset Delay					ms
V_R	PSU Ripple +3.3V	BW 175MHz		45		mV
I_R	3.3V Ripple Current	BW 120MHz		4		mA

Layout Considerations

The RAECM is designed with castellated pins which allows the module to be fitted to your front-end board like any other component.

Physical Dimensions(mm)

