



AI Development Carrier Board

Y-C18

Datasheet



Version V1

Date 2026-01-19

Copyright by Beijing Plink-AI Technology Co., LTD.2023.All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Plink-AI Technologies Co., Ltd.

Notice

The purchased products, services and features are stipulated by the contract made between Plink-AI and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Please scan code for more products



Website



Official Accounts



WeChat Channel

Beijing Plink-AI Technology Co., LTD

Web: <http://www.plink-ai.com/>

Add: Room 1108, Jinyu Jiahua Building, Shangdi 3rd Street, Haidian District, Beijing

Tel: +86-010-62962285/400-127-3302

Y-C18 Document History

Version	Date	Description of Change	Hardware Version
V 1.0	2026-1-30	Create a document	V 1.0

Hardware Update History

Version	Date	Description of Change
V 1.0	2026-2-10	Initial version

Electronic components and circuits are very sensitive to electrostatic discharge, although the company will design the main interface on the board card to do anti-static protection design, but it is difficult to do anti-static safety protection for all components and circuits. Therefore, it is recommended that you take ESD safety measures when handling any circuit board component.



ESD safety measures include but are not limited to the following:

1. Put the card in an ESD bag during transportation or storage. Do not take out the card until installation and deployment.
2. Before touching the board, release the static electricity stored in the body: Wear a grounding wrist strap.
3. Operate circuit boards only in electrostatic discharge safe areas.
4. Avoid moving circuit boards in carpeted areas.
5. Avoid direct contact with electronic components on the board through edge contact.

Table of Contents

1 Introduction-----	5
2 Specifications-----	6
3 External I/O Ports-----	9
4 Dimension Figure-----	11
5 Connector Description-----	12
6 Ordering Information-----	25
7 Recovery Mode-----	25
8 Method of Application-----	26
9 GPIO Test-----	27
10 CAN Test-----	28
11 Serial Port Test-----	29
12 Special Instructions-----	30

1 Introduction



Y-C18 is an interface carrier board compatible with the NVIDIA Jetson Orin NX/ORIN NANO series core modules. All components on the board are of wide-temperature industrial-grade models. The main interfaces are designed with electrostatic safety protection. It adopts a highly reliable power application solution, and the input power has overvoltage and reverse polarity protection functions. It features a rich array of external interfaces.

The Y-C18 carrier board is equipped with 2 M.2 Key M slots, which can accommodate hard drives of 2230 and 2280 sizes. It also has an onboard M.2 Key E slot that can be used to expand the wifi module.

2 Specifications

	Specific
Carrier Board	Y-C18
Module	NVIDIA Jetson ORIN NX/ORIN NANO Series Modules
Temperature	-25 ~ +60°C
Dimensions (L×W×H)	100x79x22.8mm (L/W Not Including I/O ports and mounting holes)
Weight	77g

Power Supply	Spec
Input Type	DC
Input Voltage	+9V ~ +19V

I/O Ports

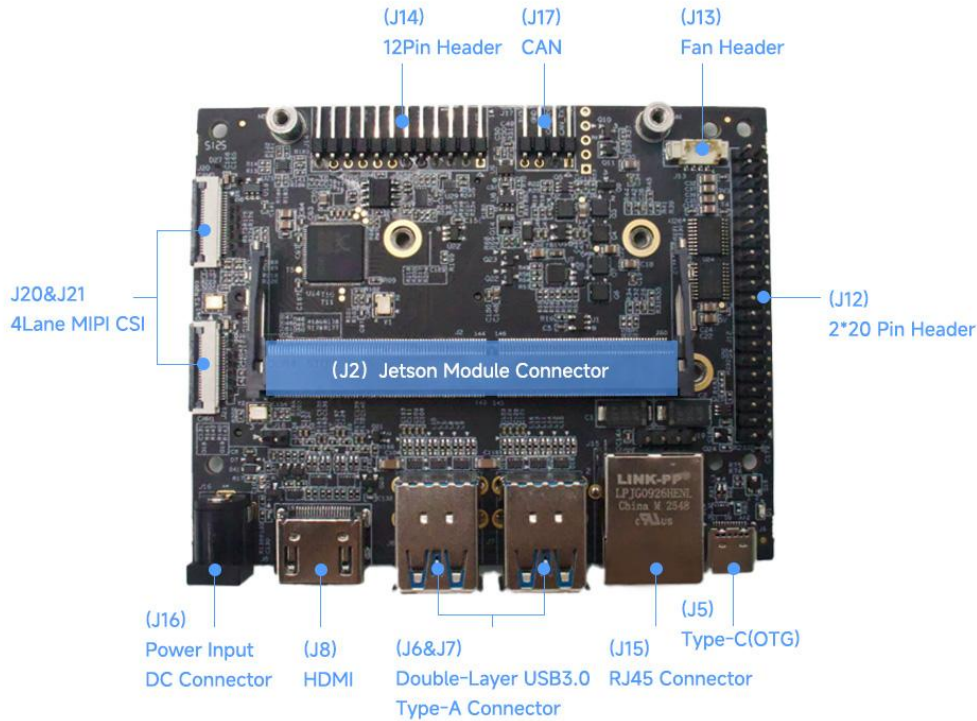
Interface	Quantity	Interface	Quantity
USB3.0 Type-A	4	Type-C(OTG)	1
RJ45	1	HDMI	1
M.2 Key M Slot (2230/2280)	2	M.2 Key E Slot(2230)	1
4 Lane MIPI CSI	2	Power Jack	1
Fan Header	1		
40pin Expansion Header	6*GPIO/2*I2C/2*SPI/1*UART/1*I2S		

NVIDIA Jetson Series Modules

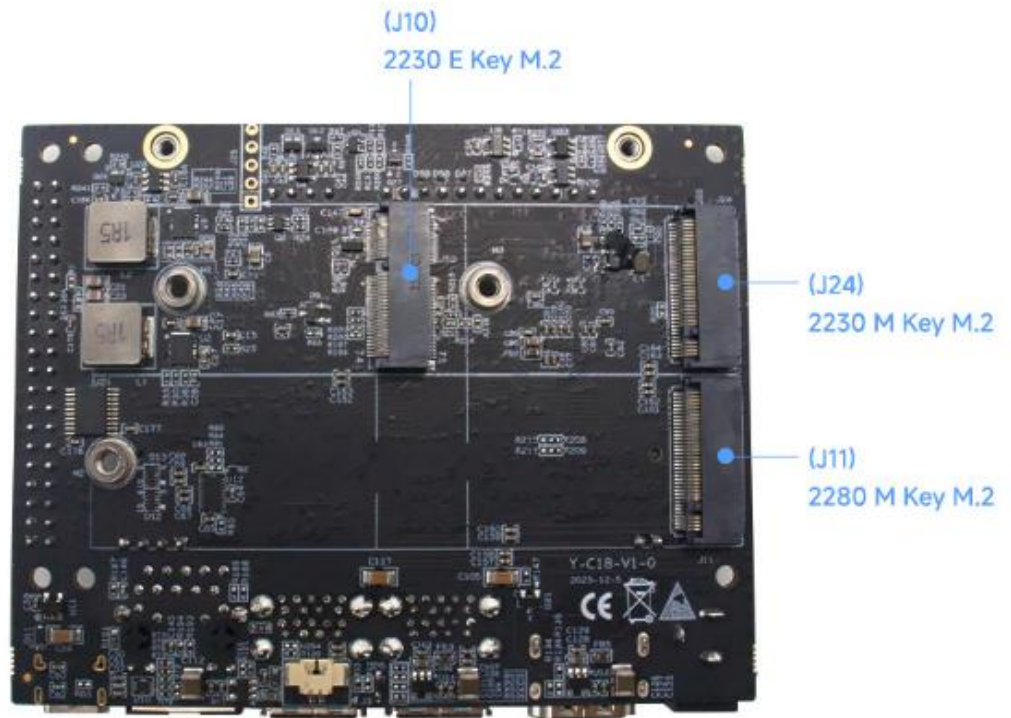
Technical Specifications

Module	Jetson ORIN NX 16GB	Jetson ORIN NX 8GB	Jetson Orin Nano 8GB	Jetson Orin Nano 4GB
AI Performance	157 TOPS	117 TOPS	67 TOPS	34 TOPS
GPU	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores		1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores	512-core NVIDIA Ampere architecture GPU with 16 Tensor Cores
CPU	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	
Memory	16GB 128-bit LPDDR5 102.4GB/s	8GB 128-bit LPDDR5 102.4GB/s	8GB 128-bit LPDDR5 68 GB/s	4GB 64-bit LPDDR5 34 GB/s
Storage	Support external NVME			
Video Encode	1x 4K60 (H.265) 3x 4K30 (H.265) 6x 1080p60 (H.265) 12x 1080p30 (H.265)		1080p30 supported by 1-2 CPU cores	
Video Decode	1x 8K30 (H.265) 2x 4K60 (H.265) 4x 4K30 (H.265) 9x 1080p60 (H.265) 18x 1080p30 (H.265)		1x 4K60 (H.265) 2x 4K30 (H.265) 5x 1080p60 (H.265) 11x 1080p30 (H.265)	
Power	10W - 40W		15W - 25W	10W - 25W

3 External I/O Ports

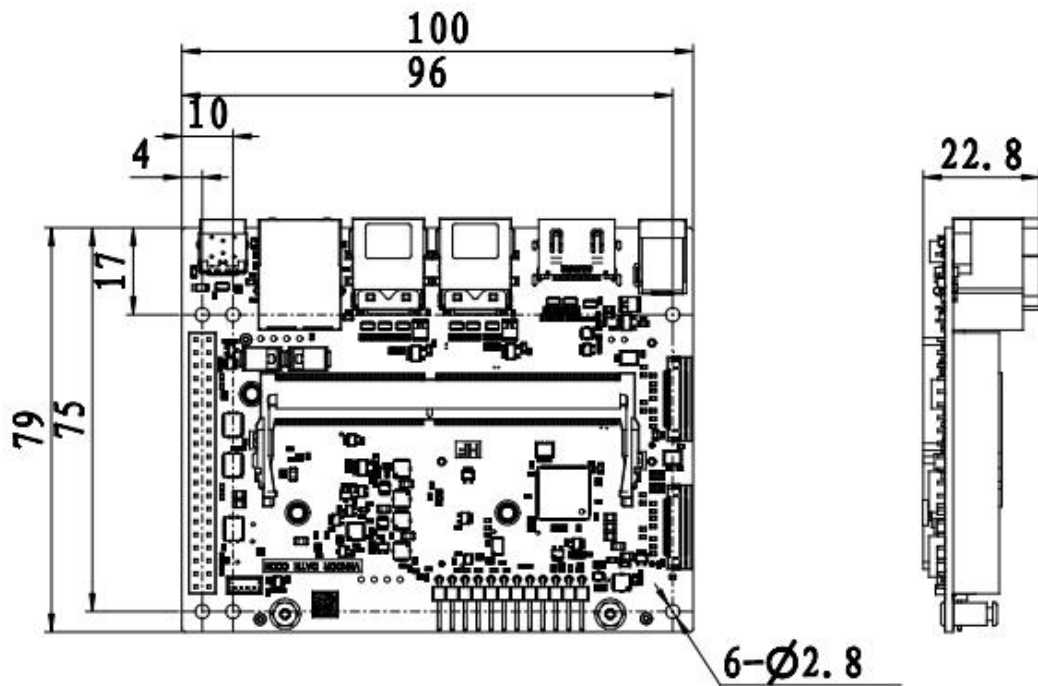


Sign	Function	Sign	Function
J2	Jetson Module Connector	J6/J7	Type A USB 3.0 (x2 stacked)
J13	FAN Header	J15	Ethernet Jack
J8	HDMI Connector	J16	Power Jack
J5	Type-C (only flash)	J12	2.54mm pitch, 2x20pin Header
J20/ J21	4 Lane MIPI CSI	J17	CAN
J14	12 pin Header		



Sign	Function	Sign	Function
J24	2230 M.2 M key Slot	J10	2230 M.2 E key Slot
J11	2280 M.2 M key Slot		

4 Dimension Figure

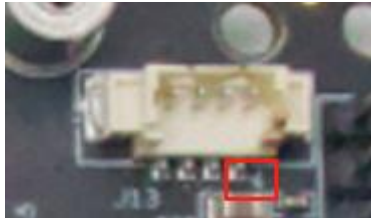


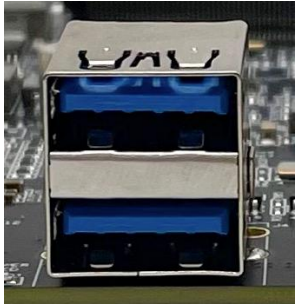
5 Y-C18 Connector Description

Jetson Module Connector (J2)		
Function	Connect the NVIDIA Jetson Orin NX / Orin Nano series modules	
Sign	J2	
Type/Model	2309413-1	
Explain	The pin definitions of this connector can be found in the pin definition description section of the NVIDIA Jetson series Orin NX core module data manual.	

USB Type-C (J5)		
Function	USB Type-C OTG Function Connector	
Sign	J5	
Type/Model	Type-C standard interface (used for burning the operating system)	
Explain	Refer to the standard definition	

Power Jack (J16)		
Function	Board power supply connector	
Sign	J16	
Type/Model	DC-005-A250	
Explain	Supported input voltage range: DC 9V-19V	

FAN Header (J13)																	
Function		Connect to external cooling system															
Sign		J13															
Type/Model		533980471															
Explain		<table><tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr><tr><td>1</td><td>GND</td><td>2</td><td>POWER (5V)</td></tr><tr><td>3</td><td>TACH</td><td>4</td><td>PWM</td></tr></table>				Pin	Signal	Pin	Signal	1	GND	2	POWER (5V)	3	TACH	4	PWM
		Pin	Signal	Pin	Signal												
		1	GND	2	POWER (5V)												
		3	TACH	4	PWM												
		Pin 1 position: The area marked by the red frame in the right image.															
																	

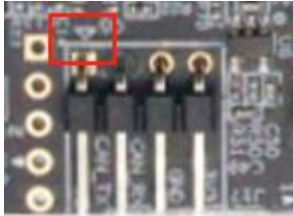
Double-layer USB 3.0 connector (J6)					
Function	Double-layer USB 3.0 Type A connector				
Sign	J6				
Type/Model	Type-A standard USB 3.0 interface				
Explain	Pin	Signal	Pin	Signal	
	1	VBUS	2	USB2_D_N	
	3	USB2_D_N	4	GND	
	5	SSRX_N	6	SSRX_P	
	7	GND	8	SSTX_N	
	9	SSTX_P			

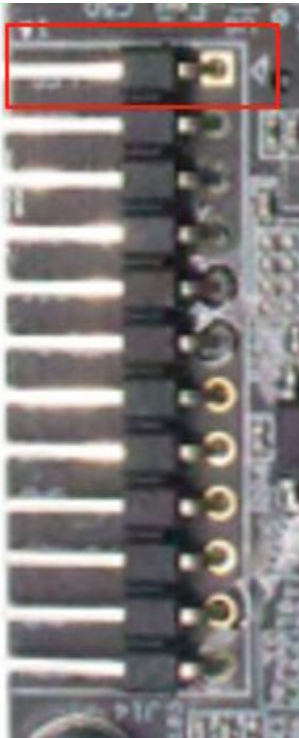
Double-layer USB 3.0 connector (J7)					
Function	Double-layer USB 3.0 Type A connector				
Sign	J7				
Type/Model	Type-A standard USB 3.0 interface				
Explain	Pin	Signal	Pin	Signal	
	1	VBUS	2	USB2_D_N	
	3	USB2_D_N	4	GND	
	5	SSRX_N	6	SSRX_P	
	7	GND	8	SSTX_N	
	9	SSTX_P			

HDMI Connector (J8)				
Function	Type A HDMI connector			
Sign	J8			
Type /Model	Type-A standard HDMI connector			
Explain	Pin	Signal	Pin	Signal
	1	HDMI_TX2_P	2	GND
	3	HDMI_TX2_N	4	HDMI_TX1_P
	5	GND	6	HDMI_TX1_N
	7	HDMI_TX0_P	8	GND
	9	HDMI_TX0_N	10	HDMI_TXC_P
	11	GND	12	HDMI_TXC_N
	13	HDMI_CEC	14	NC
	15	DDC_SCL	16	DDC_SDA
	17	GND	18	VCC_HDMI
	19	HDMI_HPD		



Multifunctional connector pins 4pin (J17)				
Function	Multifunctional connector pins 4pin			
Sign	J17			
Type/Model	2541WR-04P			
Explain	Pin	Signal	Pin	Signal
	1	CAN_TX	2	CAN_RX
	3	GND	4	VCC_3V3
Pin 1 position: The area marked by the red frame in the right image.				



Multifunctional connector pins 12pin (J14)				
Function	Multifunctional connector pins 12pin			
Sign	J14			
Type/Model	2541WR-12P			
Explain	Pin	Signal	Pin	Signal
	1	PC_LED-_5V	2	VCC_5V
	3	UART2_RX_3V3	4	UART2_TX_3V3
	5	MCU_ACOK_3V3(DIS)	6	AUTO_ON
	7	GND	8	RESET
	9	GND	10	RECOVERY
	11	GND	12	BTN
	UART2 is the default serial port for kernel debugging, used to output C-BOOT, U-BOOT, and Linux kernel information. After the Linux kernel starts, it is used as the display control terminal serial port. The default serial port settings are: 115200, 8N1. When BTN and GND are short-circuited: For a long time, directly shut down the device. When RESET and GND are short-circuited: Restart the system When DIS and AUTO_ON are short-circuited, the system will no longer automatically start up upon power-on. It is necessary to short-circuit BTN and GND before powering on.			
	Pin 1 position: The area marked by the red frame in the right image.			
				

Ethernet Jack (J15)					
Function	10/100/1000Mbps Ethernet				
Sign	J15				
Type/Model	LPJG0926HENL				
Explain					
	Pin	Signal	Pin		Signal
	1	MD0+	2		MD0-
	3	MD1+	4		GND
	5	GND	6		MD1-
	7	MD2+	8		MD2-
	9	MD3+	10		MD3-
	11	VC1	12		VC2
	13	VC3	14		VC4

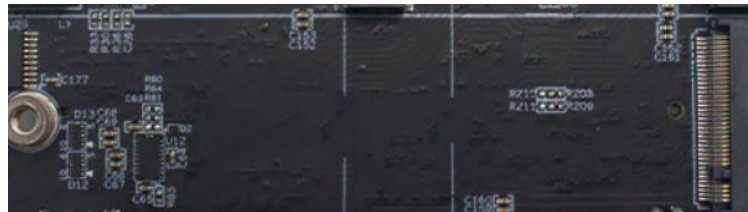
M.2 Key E Slot (J10)

Function	M.2 Key E Slot																																																																																																																																																																						
Sign	J10																																																																																																																																																																						
Type /Model	E Key , 2230 / APCI0360-P002A																																																																																																																																																																						
Expla in	<table><tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr><tr><td>1</td><td>GND</td><td>2</td><td>3P3V</td><td>3</td><td>USB2_D_P</td></tr><tr><td>4</td><td>3P3V</td><td>5</td><td>ORIN_USB2_D_N</td><td>6</td><td>NC</td></tr><tr><td>7</td><td>GND</td><td>8</td><td>PCM_CLK/12S SCK</td><td>9</td><td>NC</td></tr><tr><td>10</td><td>PCM_SYNC/12S WS</td><td>11</td><td>NC</td><td>12</td><td>AP_PCM_IN/12S SD_IN</td></tr><tr><td>13</td><td>NC</td><td>14</td><td>AP_PCM_OUT/12S SD_OUT</td><td>15</td><td>NC</td></tr><tr><td>16</td><td>NC</td><td>17</td><td>NC</td><td>18</td><td>GND</td></tr><tr><td>19</td><td>NC</td><td>20</td><td>UART_WAKE#</td><td>21</td><td>NC</td></tr><tr><td>22</td><td>AP_UART_RXD</td><td>23</td><td>NC</td><td>24</td><td>NC</td></tr><tr><td>25</td><td>NC</td><td>26</td><td>NC</td><td>27</td><td>NC</td></tr><tr><td>28</td><td>NC</td><td>29</td><td>NC</td><td>30</td><td>NC</td></tr><tr><td>31</td><td>NC</td><td>32</td><td>AP_UART_TXD</td><td>33</td><td>GND</td></tr><tr><td>34</td><td>AP_UART_CTS</td><td>35</td><td>TX0_P</td><td>36</td><td>AP_UART_RTS</td></tr><tr><td>37</td><td>TX0_N</td><td>38</td><td>NC</td><td>39</td><td>GND</td></tr><tr><td>40</td><td>NC</td><td>41</td><td>RX0_P</td><td>42</td><td>VENDOR_DEFINED</td></tr><tr><td>43</td><td>RX0_N</td><td>44</td><td>NC</td><td>45</td><td>GND</td></tr><tr><td>46</td><td>NC</td><td>47</td><td>CLK_P</td><td>48</td><td>NC</td></tr><tr><td>49</td><td>CLK_N</td><td>50</td><td>SUSCLK_32KHZ</td><td>51</td><td>GND</td></tr><tr><td>52</td><td>PERST0#</td><td>53</td><td>CLKREQ_N_3V3</td><td>54</td><td>W_DISABLE2#</td></tr><tr><td>55</td><td>WAKE_N_3V3</td><td>56</td><td>W_DISABLE1#</td><td>57</td><td>GND</td></tr><tr><td>58</td><td>I2C_DATA</td><td>59</td><td>NC</td><td>60</td><td>I2C_CLK</td></tr><tr><td>61</td><td>NC</td><td>62</td><td>NC</td><td>63</td><td>GND</td></tr><tr><td>64</td><td>NC</td><td>65</td><td>NC</td><td>66</td><td>NC</td></tr><tr><td>67</td><td>NC</td><td>68</td><td>NC</td><td>69</td><td>GND</td></tr><tr><td>70</td><td>NC</td><td>71</td><td>NC</td><td>72</td><td>3P3V</td></tr><tr><td>73</td><td>NC</td><td>74</td><td>3P3V</td><td>75</td><td>GND</td></tr><tr><td>77</td><td>GND</td><td></td><td></td><td></td><td></td></tr></table>					Pin	Signal	Pin	Signal	Pin	Signal	1	GND	2	3P3V	3	USB2_D_P	4	3P3V	5	ORIN_USB2_D_N	6	NC	7	GND	8	PCM_CLK/12S SCK	9	NC	10	PCM_SYNC/12S WS	11	NC	12	AP_PCM_IN/12S SD_IN	13	NC	14	AP_PCM_OUT/12S SD_OUT	15	NC	16	NC	17	NC	18	GND	19	NC	20	UART_WAKE#	21	NC	22	AP_UART_RXD	23	NC	24	NC	25	NC	26	NC	27	NC	28	NC	29	NC	30	NC	31	NC	32	AP_UART_TXD	33	GND	34	AP_UART_CTS	35	TX0_P	36	AP_UART_RTS	37	TX0_N	38	NC	39	GND	40	NC	41	RX0_P	42	VENDOR_DEFINED	43	RX0_N	44	NC	45	GND	46	NC	47	CLK_P	48	NC	49	CLK_N	50	SUSCLK_32KHZ	51	GND	52	PERST0#	53	CLKREQ_N_3V3	54	W_DISABLE2#	55	WAKE_N_3V3	56	W_DISABLE1#	57	GND	58	I2C_DATA	59	NC	60	I2C_CLK	61	NC	62	NC	63	GND	64	NC	65	NC	66	NC	67	NC	68	NC	69	GND	70	NC	71	NC	72	3P3V	73	NC	74	3P3V	75	GND	77	GND				
	Pin	Signal	Pin	Signal	Pin	Signal																																																																																																																																																																	
	1	GND	2	3P3V	3	USB2_D_P																																																																																																																																																																	
	4	3P3V	5	ORIN_USB2_D_N	6	NC																																																																																																																																																																	
	7	GND	8	PCM_CLK/12S SCK	9	NC																																																																																																																																																																	
	10	PCM_SYNC/12S WS	11	NC	12	AP_PCM_IN/12S SD_IN																																																																																																																																																																	
	13	NC	14	AP_PCM_OUT/12S SD_OUT	15	NC																																																																																																																																																																	
	16	NC	17	NC	18	GND																																																																																																																																																																	
	19	NC	20	UART_WAKE#	21	NC																																																																																																																																																																	
	22	AP_UART_RXD	23	NC	24	NC																																																																																																																																																																	
	25	NC	26	NC	27	NC																																																																																																																																																																	
	28	NC	29	NC	30	NC																																																																																																																																																																	
	31	NC	32	AP_UART_TXD	33	GND																																																																																																																																																																	
	34	AP_UART_CTS	35	TX0_P	36	AP_UART_RTS																																																																																																																																																																	
	37	TX0_N	38	NC	39	GND																																																																																																																																																																	
	40	NC	41	RX0_P	42	VENDOR_DEFINED																																																																																																																																																																	
	43	RX0_N	44	NC	45	GND																																																																																																																																																																	
	46	NC	47	CLK_P	48	NC																																																																																																																																																																	
	49	CLK_N	50	SUSCLK_32KHZ	51	GND																																																																																																																																																																	
	52	PERST0#	53	CLKREQ_N_3V3	54	W_DISABLE2#																																																																																																																																																																	
	55	WAKE_N_3V3	56	W_DISABLE1#	57	GND																																																																																																																																																																	
	58	I2C_DATA	59	NC	60	I2C_CLK																																																																																																																																																																	
	61	NC	62	NC	63	GND																																																																																																																																																																	
	64	NC	65	NC	66	NC																																																																																																																																																																	
	67	NC	68	NC	69	GND																																																																																																																																																																	
	70	NC	71	NC	72	3P3V																																																																																																																																																																	
	73	NC	74	3P3V	75	GND																																																																																																																																																																	
	77	GND																																																																																																																																																																					

M.2 Key M Slot (J24)

Function	M.2 Key M Slot																																																																																																																																																													
Sign	J24																																																																																																																																																													
Type /Model	M Key , 2230/ APCI0107-P001A																																																																																																																																																													
Expla in	<table><tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr><tr><td>1</td><td>GND</td><td>2</td><td>VCC_3V3</td><td>3</td><td>GND</td></tr><tr><td>4</td><td>VCC_3V3</td><td>5</td><td>NC</td><td>6</td><td>NC</td></tr><tr><td>7</td><td>NC</td><td>8</td><td>NC</td><td>9</td><td>GND</td></tr><tr><td>10</td><td>NC</td><td>11</td><td>NC</td><td>12</td><td>VCC_3V3</td></tr><tr><td>13</td><td>NC</td><td>14</td><td>VCC_3V3</td><td>15</td><td>GND</td></tr><tr><td>16</td><td>VCC_3V3</td><td>17</td><td>NC</td><td>18</td><td>VCC_3V3</td></tr><tr><td>19</td><td>NC</td><td>20</td><td>NC</td><td>21</td><td>GND</td></tr><tr><td>22</td><td>NC</td><td>23</td><td>NC</td><td>24</td><td>NC</td></tr><tr><td>25</td><td>NC</td><td>26</td><td>NC</td><td>27</td><td>GND</td></tr><tr><td>28</td><td>NC</td><td>29</td><td>PCIE2_RX1_N</td><td>30</td><td>NC</td></tr><tr><td>31</td><td>PCIE2_RX1_P</td><td>32</td><td>NC</td><td>33</td><td>GND</td></tr><tr><td>34</td><td>NC</td><td>35</td><td>PCIE2_TX1_N</td><td>36</td><td>NC</td></tr><tr><td>37</td><td>PCIE2_TX1_P</td><td>38</td><td>NC</td><td>39</td><td>GND</td></tr><tr><td>40</td><td>I2C2_SCL_1V8</td><td>41</td><td>PCIE2_RX1_N</td><td>42</td><td>I2C2_SDA_1V8</td></tr><tr><td>43</td><td>PCIE2_RX1_P</td><td>44</td><td>M2_KEYM_ALERT_N_1V8</td><td>45</td><td>GND</td></tr><tr><td>46</td><td>NC</td><td>47</td><td>PCIE2_TX0_N</td><td>48</td><td>NC</td></tr><tr><td>49</td><td>PCIE2_TX0_P</td><td>50</td><td>PCIE2_RST_N_3V3</td><td>51</td><td>GND</td></tr><tr><td>52</td><td>PCIE2_CLKREQ_N_3V3</td><td>53</td><td>PCIE2_CLK_N</td><td>54</td><td>PCIE_WAKE_N_3V3</td></tr><tr><td>55</td><td>PCIE2_CLK_P</td><td>56</td><td>NC</td><td>57</td><td>GND</td></tr><tr><td>58</td><td>NC</td><td>59</td><td>NC</td><td>60</td><td>NC</td></tr><tr><td>61</td><td>NC</td><td>62</td><td>NC</td><td>63</td><td>NC</td></tr><tr><td>64</td><td>NC</td><td>65</td><td>NC</td><td>66</td><td>NC</td></tr><tr><td>67</td><td>NC</td><td>68</td><td>SUSCLK(32KHz)</td><td>69</td><td>NC</td></tr><tr><td>70</td><td>VCC_3V3</td><td>71</td><td>GND</td><td>72</td><td>VCC_3V3</td></tr><tr><td>73</td><td>GND</td><td>74</td><td>VCC_3V3</td><td>75</td><td>GND</td></tr></table>		Pin	Signal	Pin	Signal	Pin	Signal	1	GND	2	VCC_3V3	3	GND	4	VCC_3V3	5	NC	6	NC	7	NC	8	NC	9	GND	10	NC	11	NC	12	VCC_3V3	13	NC	14	VCC_3V3	15	GND	16	VCC_3V3	17	NC	18	VCC_3V3	19	NC	20	NC	21	GND	22	NC	23	NC	24	NC	25	NC	26	NC	27	GND	28	NC	29	PCIE2_RX1_N	30	NC	31	PCIE2_RX1_P	32	NC	33	GND	34	NC	35	PCIE2_TX1_N	36	NC	37	PCIE2_TX1_P	38	NC	39	GND	40	I2C2_SCL_1V8	41	PCIE2_RX1_N	42	I2C2_SDA_1V8	43	PCIE2_RX1_P	44	M2_KEYM_ALERT_N_1V8	45	GND	46	NC	47	PCIE2_TX0_N	48	NC	49	PCIE2_TX0_P	50	PCIE2_RST_N_3V3	51	GND	52	PCIE2_CLKREQ_N_3V3	53	PCIE2_CLK_N	54	PCIE_WAKE_N_3V3	55	PCIE2_CLK_P	56	NC	57	GND	58	NC	59	NC	60	NC	61	NC	62	NC	63	NC	64	NC	65	NC	66	NC	67	NC	68	SUSCLK(32KHz)	69	NC	70	VCC_3V3	71	GND	72	VCC_3V3	73	GND	74	VCC_3V3	75	GND
	Pin	Signal	Pin	Signal	Pin	Signal																																																																																																																																																								
	1	GND	2	VCC_3V3	3	GND																																																																																																																																																								
	4	VCC_3V3	5	NC	6	NC																																																																																																																																																								
	7	NC	8	NC	9	GND																																																																																																																																																								
	10	NC	11	NC	12	VCC_3V3																																																																																																																																																								
	13	NC	14	VCC_3V3	15	GND																																																																																																																																																								
	16	VCC_3V3	17	NC	18	VCC_3V3																																																																																																																																																								
	19	NC	20	NC	21	GND																																																																																																																																																								
	22	NC	23	NC	24	NC																																																																																																																																																								
	25	NC	26	NC	27	GND																																																																																																																																																								
	28	NC	29	PCIE2_RX1_N	30	NC																																																																																																																																																								
	31	PCIE2_RX1_P	32	NC	33	GND																																																																																																																																																								
	34	NC	35	PCIE2_TX1_N	36	NC																																																																																																																																																								
	37	PCIE2_TX1_P	38	NC	39	GND																																																																																																																																																								
	40	I2C2_SCL_1V8	41	PCIE2_RX1_N	42	I2C2_SDA_1V8																																																																																																																																																								
	43	PCIE2_RX1_P	44	M2_KEYM_ALERT_N_1V8	45	GND																																																																																																																																																								
	46	NC	47	PCIE2_TX0_N	48	NC																																																																																																																																																								
	49	PCIE2_TX0_P	50	PCIE2_RST_N_3V3	51	GND																																																																																																																																																								
	52	PCIE2_CLKREQ_N_3V3	53	PCIE2_CLK_N	54	PCIE_WAKE_N_3V3																																																																																																																																																								
	55	PCIE2_CLK_P	56	NC	57	GND																																																																																																																																																								
	58	NC	59	NC	60	NC																																																																																																																																																								
	61	NC	62	NC	63	NC																																																																																																																																																								
	64	NC	65	NC	66	NC																																																																																																																																																								
	67	NC	68	SUSCLK(32KHz)	69	NC																																																																																																																																																								
	70	VCC_3V3	71	GND	72	VCC_3V3																																																																																																																																																								
	73	GND	74	VCC_3V3	75	GND																																																																																																																																																								

M.2 Key M Slot (J11)

Function	M.2 Key M Slot						
Sign	J11						
Type /Model	M Key , 2280/ APCI0107-P001A						
Expla in	Pin	Signal	Pin	Signal	Pin	Signal	
	1	GND	2	VCC_3V3	3	GND	
	4	VCC_3V3	5	PCIE0_RX3_N	6	NC	
	7	PCIE0_RX3_P	8	NC	9	GND	
	10	NC	11	PCIE0_TX3_N	12	VCC_3V3	
	13	PCIE0_TX3_P	14	VCC_3V3	15	GND	
	16	VCC_3V3	17	PCIE0_RX2_N	18	VCC_3V3	
	19	PCIE0_RX2_P	20	NC	21	GND	
	22	NC	23	PCIE0_TX2_N	24	NC	
	25	PCIE0_TX2_P	26	NC	27	GND	
	28	NC	29	PCIE0_RX1_N	30	NC	
	31	PCIE0_RX1_P	32	NC	33	GND	
	34	NC	35	PCIE0_TX1_N	36	NC	
	37	PCIE0_TX1_P	38	NC	39	GND	
	40	I2C2_SCL_1V8	41	PCIE0_RX0_N	42	I2C2_SDA_1V8	
	43	PCIE0_RX0_P	44	M2_KEYM_M0_ALERT_N_1V8	45	GND	
	46	NC	47	PCIE0_TX0_N	48	NC	
	49	PCIE0_TX0_P	50	PCIE0_RST_N_3V3	51	GND	
	52	PCIE0_CLKREQ_N_3V3	53	PCIE2_CLK_N	54	PCIE_WAKE_N_3V3	
	55	PCIE0_CLK_P	56	NC	57	GND	
	58	NC	59	NC	60	NC	
	61	NC	62	NC	63	NC	
	64	NC	65	NC	66	NC	
	67	NC	68	SUSCLK(32KHz)	69	NC	
	70	VCC_3V3	71	GND	72	VCC_3V3	
	73	GND	74	VCC_3V3	75	GND	

MIPI CSI Connector (J20)				
Function	4 Lane MIPI CSI Camera Connector			
Sign	J20			
Type /Model	X05A20L22T			
Expl in	Pin	Signal	Pin	Signal
	1	VCC_3V3	2	CAM0_I2C_SDA_3V3
	3	CAM0_I2C_SCL_3V3	4	GND
	5	CAM0_MCLK_1V8	6	CAM0_PWDN_3V3
	7	GND	8	CSI0_D1_P
	9	CSI0_D1_N	10	GND
	11	CSI0_D0_P	12	CSI0_D0_N
	13	GND	14	CSI1_CLK_P
	15	CSI1_CLK_N	16	GND
	17	CSI1_D1_P	18	CSI1_D1_N
	19	GND	20	CSI1_D0_P
	21	CSI1_D0_N	22	GND
	Pin 1 position: The area marked by the red frame in the right image.			



MIPI CSI Connector (J21)				
Function	4 Lane MIPI CSI Camera Connector			
Sign	J21			
Type /Model	X05A20L22T			
Expla in	Pin	Signal	Pin	Signal
	1	VCC_3V3	2	CAM1_I2C_SDA_3V3
	3	CAM1_I2C_SCL_3V3	4	GND
	5	CAM1_MCLK_1V8	6	CAM1_PWDN_3V3
	7	GND	8	CSI3_D1_P
	9	CSI3_D1_N	10	GND
	11	CSI3_D0_P	12	CSI3_D0_N
	13	GND	14	CSI2_CLK_P
	15	CSI2_CLK_N	16	GND
	17	CSI2_D1_P	18	CSI2_D1_N
	19	GND	20	CSI2_D0_P
	21	CSI2_D0_N	22	GND
	Pin 1 position: The area marked by the red frame in the right image.			



2.54mm pitch, 2x20pin Header (J12)

Function	Multifunctional signal expansion interface																																																																																							
Sign	J12																																																																																							
Type/Model	2.54mm pitch, 2*20-pin dual-row straight-pin arrangement																																																																																							
Explain	<table><tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr><tr><td>1</td><td>3.3V</td><td>2</td><td>5V</td></tr><tr><td>3</td><td>I2C1_SDA</td><td>4</td><td>5V</td></tr><tr><td>5</td><td>I2C1_SCL</td><td>6</td><td>GND</td></tr><tr><td>7</td><td>GPIO09</td><td>8</td><td>UART1_TX</td></tr><tr><td>9</td><td>GND</td><td>10</td><td>UART1_RX</td></tr><tr><td>11</td><td>UART1_RTS</td><td>12</td><td>I2S0_SCLK</td></tr><tr><td>13</td><td>SPI1_SCK</td><td>14</td><td>GND</td></tr><tr><td>15</td><td>GPIO12</td><td>16</td><td>SPI1_CS1_N</td></tr><tr><td>17</td><td>3.3V</td><td>18</td><td>SPI1_CS0_N</td></tr><tr><td>19</td><td>SPI0_MOSI</td><td>20</td><td>GND</td></tr><tr><td>21</td><td>SPI0_MISO</td><td>22</td><td>SPI1_MISO</td></tr><tr><td>23</td><td>SPI0_SCK</td><td>24</td><td>SPI0_CS0_N</td></tr><tr><td>25</td><td>GND</td><td>26</td><td>SPI0_CS1_N</td></tr><tr><td>27</td><td>I2C0_SDA</td><td>28</td><td>I2C0_SCL</td></tr><tr><td>29</td><td>GPIO01</td><td>30</td><td>GND</td></tr><tr><td>31</td><td>GPIO11</td><td>32</td><td>GPIO07</td></tr><tr><td>33</td><td>GPIO13</td><td>34</td><td>GND</td></tr><tr><td>35</td><td>I2S0_LRCK</td><td>36</td><td>UART1_CTS</td></tr><tr><td>37</td><td>SPI1_MOSI</td><td>38</td><td>I2S0_DIN</td></tr><tr><td>39</td><td>GND</td><td>40</td><td>I2S0_DOUT</td></tr></table>	Pin	Signal	Pin	Signal	1	3.3V	2	5V	3	I2C1_SDA	4	5V	5	I2C1_SCL	6	GND	7	GPIO09	8	UART1_TX	9	GND	10	UART1_RX	11	UART1_RTS	12	I2S0_SCLK	13	SPI1_SCK	14	GND	15	GPIO12	16	SPI1_CS1_N	17	3.3V	18	SPI1_CS0_N	19	SPI0_MOSI	20	GND	21	SPI0_MISO	22	SPI1_MISO	23	SPI0_SCK	24	SPI0_CS0_N	25	GND	26	SPI0_CS1_N	27	I2C0_SDA	28	I2C0_SCL	29	GPIO01	30	GND	31	GPIO11	32	GPIO07	33	GPIO13	34	GND	35	I2S0_LRCK	36	UART1_CTS	37	SPI1_MOSI	38	I2S0_DIN	39	GND	40	I2S0_DOUT			
	Pin	Signal	Pin	Signal																																																																																				
	1	3.3V	2	5V																																																																																				
	3	I2C1_SDA	4	5V																																																																																				
	5	I2C1_SCL	6	GND																																																																																				
	7	GPIO09	8	UART1_TX																																																																																				
	9	GND	10	UART1_RX																																																																																				
	11	UART1_RTS	12	I2S0_SCLK																																																																																				
	13	SPI1_SCK	14	GND																																																																																				
	15	GPIO12	16	SPI1_CS1_N																																																																																				
	17	3.3V	18	SPI1_CS0_N																																																																																				
	19	SPI0_MOSI	20	GND																																																																																				
	21	SPI0_MISO	22	SPI1_MISO																																																																																				
	23	SPI0_SCK	24	SPI0_CS0_N																																																																																				
	25	GND	26	SPI0_CS1_N																																																																																				
	27	I2C0_SDA	28	I2C0_SCL																																																																																				
	29	GPIO01	30	GND																																																																																				
	31	GPIO11	32	GPIO07																																																																																				
	33	GPIO13	34	GND																																																																																				
	35	I2S0_LRCK	36	UART1_CTS																																																																																				
	37	SPI1_MOSI	38	I2S0_DIN																																																																																				
	39	GND	40	I2S0_DOUT																																																																																				
UART1 serial port is a TTL serial port. Device Name:																																																																																								
<table><tr><td></td><td>UART1</td></tr><tr><td>ORIN NX</td><td>/dev/ttyTHS1</td></tr><tr><td>ORIN NANO</td><td>/dev/ttyTHS1</td></tr></table>					UART1	ORIN NX	/dev/ttyTHS1	ORIN NANO	/dev/ttyTHS1																																																																															
	UART1																																																																																							
ORIN NX	/dev/ttyTHS1																																																																																							
ORIN NANO	/dev/ttyTHS1																																																																																							
Pin 1 position: The area marked by the red frame in the right image.																																																																																								



2.54mm pitch, 2x20pin Header (J12)

Explain

I2C Device Name:

	i2c0	i2c1
ORIN NX	/dev/i2c-1	/dev/i2c-7
ORIN NANO	/dev/i2c-1	/dev/i2c-7

The GPIO mapping numbers that are derived are shown in the following table. The high voltage level of the GPIO is 3.3V.

	GPIO09	GPIO12	GPIO01
ORIN NX	PAC.06 (gpiochip0, 144)	PN.01 (gpiochip0, 85)	PQ.05 (gpiochip0, 105)
ORIN NANO	PAC.06 (gpiochip0, 144)	PN.01 (gpiochip0, 85)	PQ.05 (gpiochip0, 105)

	GPIO11	GPIO13	GPIO07
ORIN NX	PQ.06 (gpiochip0, 106)	PH.00 (gpiochip0, 43)	PG.06 (gpiochip0, 41)
ORIN NANO	PQ.06 (gpiochip0, 106)	PH.00 (gpiochip0, 43)	PG.06 (gpiochip0, 41)

Explanation of GPIO device numbers:

Take GPIO09 as an example: gpiochip0,144 is the number obtained through gpiofind query, and will be used later for testing GPIO with the gpiod tool.

6 Ordering Information

Order Type	Function
Y-C18	The interface expansion carrier board for the core modules of NVIDIA® Jetson™ ORIN NX/ORIN NANO series.

E-commerce Platform

Ali International Station Address: <https://plink-ai.en.alibaba.com/>

7 Recovery Mode

The Jetson core module can operate in normal mode and Recovery mode. In Recovery mode, operations such as file system update, kernel update, Bootloader/UEFI update, and BCT update can be performed.

The steps to enter Recovery mode are as follows:

Turn off the system power supply.

Connect the Type-C cable between the Type-C port (J5) of Y-C18 and the USB port of the Jetson development host.

Short-circuit the 10th and 11th pins of J14, then supply power to the system.

The system enters Recovery mode. At this point, you can perform subsequent operations.

8 Method of Application

- Make sure that the voltages of all external systems have been turned off.
- Install the Jetson core module onto the J2 high-speed connector. During the installation process, pay attention to the alignment between the connectors and apply even force. After the module is installed in place, install the core module fixing screws.
- Install the necessary external cables. (Such as the display cable connected to the HDMI display, the power input cable for powering the system, the USB cable linking the keyboard and mouse, the camera, the MiniPCIe function expansion module...)
- Connect the power cable to the power source. Before powering on, be sure to ensure that the cooling device on the core module has been installed.
- For systems without a protective casing, after powering on the system, avoid moving the hardware system and strictly prohibit touching the circuit board and any electronic components on it with your body.

9 GPIO Test

The Y-C18 is equipped with the Jetson module and comes with 6 GPIO ports. It can output 3.3V voltage programmatically. Please note that the input voltage should not exceed 3.3V.

When using the Orin Nano module, with L4T 36.4.4, for example, GPIO 09:

- The content following the "#" symbol in the following commands is a comment and does not need to be included when executing the commands.
- `sudo apt update`
- `sudo apt install gpiod`
- `sudo gpiofind "PAC.06" #Here, it will return its group and number.`
#This is the measurement output method
- `sudo gpiowrite --mode=wait /dev/gpiochip0 144=1`
#Measure the voltage between this pin and GND using a multimeter, and it should be 3.3V.
#This is the measurement of the input method.
- `sudo gpioget gpiochip0 144`
#After connecting this GPIO pin to 3.3V, the return value becomes 1.
#After connecting this GPIO pin to GND, the return value becomes 0, which indicates that it is correct.

10 CAN Test

- When the Y-C18 is paired with the Jetson Orin Nano module, it comes standard with one CAN signal. Connect CANH to the external device's CAN_H and short CAN_L to the external CANL. The test command is as follows:

```
sudo apt-get install busybox can-utils
```

#Write the specified value into the register

#The addresses of the registers that need to be written into by different modules, as well as the values to be written, are all different. Please refer to the relevant link at the end of this section for details.

- `sudo busybox devmem 0x0c303018 w 0xc458`
- `sudo busybox devmem 0x0c303010 w 0xc400`
- `sudo modprobe can` #Load the CAN bus subsystem support module
- `sudo modprobe can_raw` #Load the original CAN protocol module
- `sudo modprobe mttcan` #Loading CAN interface support
- `sudo ip link set can0 type can bitrate 500000` #Set the baud rate of CAN0 to 500 kbps.
- `sudo ip link set up can0` #Open CAN0
- `candump can0 &` #Set CAN0 to receive mode
- `cansend can0 123#abcdabcd`

Please refer to the link for the values of different module registers:

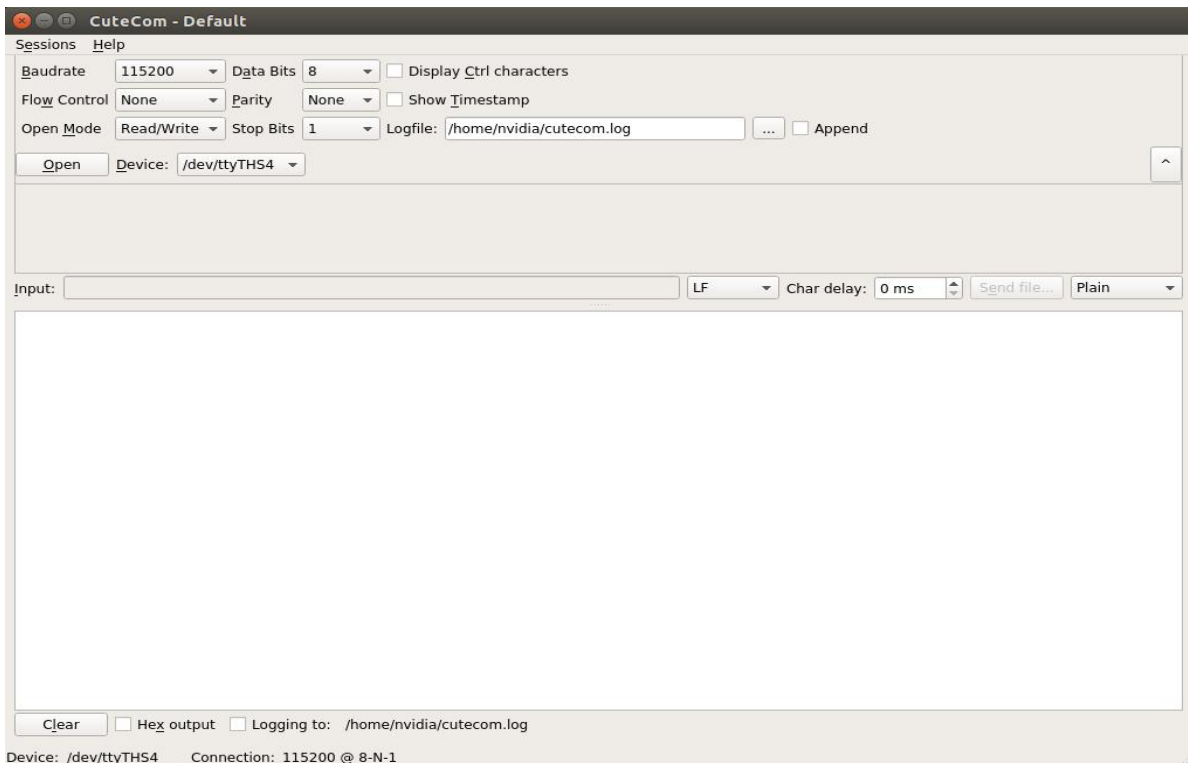
Controller Area Network (CAN) — Jetson Linux Developer Guide
documentation (nvidia.com)

11 Serial Port Test

- When Y-C18 is paired with the Jetson module, it is standardly equipped with 1 3.3V TTL serial port, which can be used for self-testing of a single serial port as well as connection testing of two serial ports.

The operation instructions are as follows:

- `sudo apt-get install cutecom` #Install the serial port test tool
- `sudo cutecom` # For a single-serial port test, you only need to open one cutecom interface on each terminal. For a two-serial port connection test, use two terminals and open two cutecom interfaces.
- When testing a single serial port, connect the RX of a single serial port to the TX. The interface of the serial port test tool cutecom is as follows:



12 Special Instructions

- Initial system username: **nvidia** , password: **nvidia**, no password su. If root permissions are required, use sudo to grant permissions, or use sudo su to access the root user.
- The pre-installed system is pure by default and does not contain Jetpack software. You can use the following command to install the software. Do not replace or modify the default software source before installation:
 - `sudo apt-get update`
 - `sudo apt-get install nvidia-jetpack`
- It can also be installed over the network using SDKmanager software.
- For more information please refer to :Jetson wiki (plink-ai.com)