



104-1-Buzzer-PCB-Design-v1-AP- 2021-08-24.odp

CTI One Corporation

Version: 1.0

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Project Lead: Harry Li, Ph.D.

Team members: Aniket Phatak

Company confidential

Buzzer PCB Design Objectives

1. To provide functionality to the exiting Tx2 board and/or NANO board to allow the board provide the buzzer sound when triggered by the software driver and user program;
2. To realize an easy mounting by a plug-and-play PCB board to allow it fit into the exiting connectors of Tx2 and/or NANO;
3. To make sure mechanical locking mechanism is adopted to give a fail-proof secure connection;
4. To allow both audible and visual alarm signals to be easily detected by the user and the system operators.

The PCB Design Specifications

1. PWM pin of the J2 connector from Tx2 board, or PWM pin of J??? connector of NANO board is connected to a buzzer device, so when PWM output signal is activated, the buzzer will be driven to produce the buzzer sound; The audible sound should reach ??? dB at ??? Khz frequency.
2. The current output from PWM pin should be regulated in the range of 4 mA – 15 mA maximum;
3. The red LED should be lighted up when the PWM output signal is activated and this LED should be visible with ??? Lums.

Connector Identification for Tx2 and/or NANO

Provide connector of Tx2 board photo here
(with URL)

Provide Tx2 pin connectivity table here
(with URL)

Provide connector of NANO board photo here
(with URL)

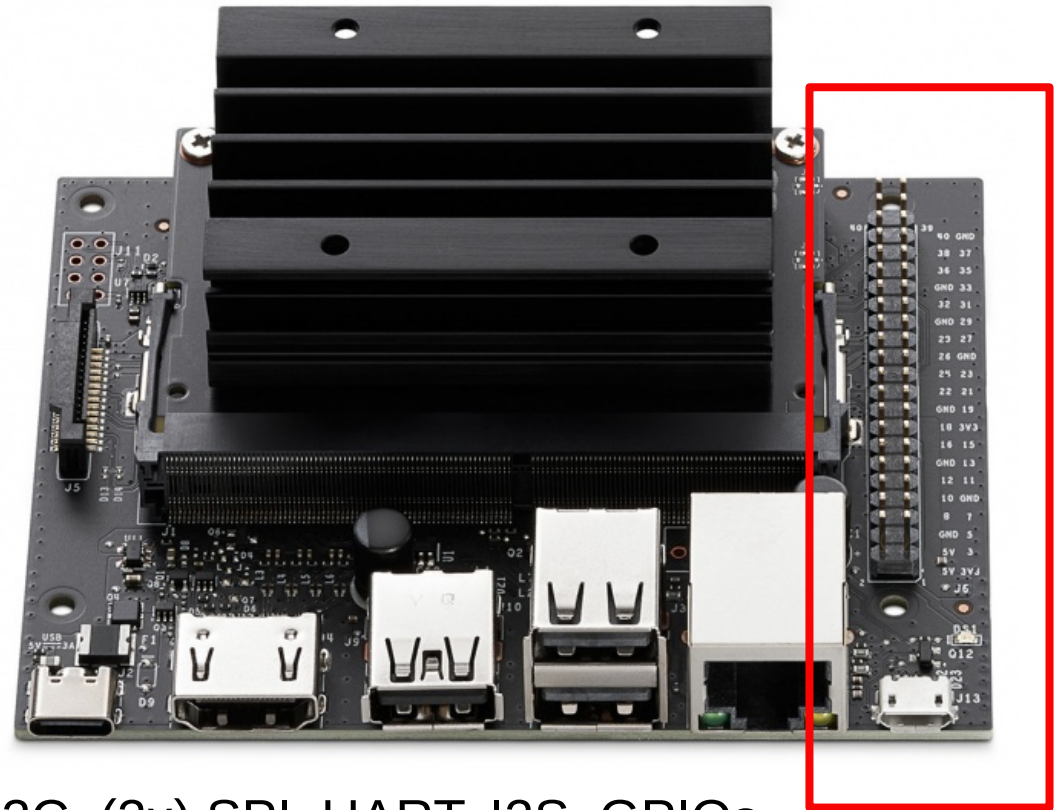
Provide NANO pin connectivity table here
(with URL)

NANO Board 40-Pin Connector (Header) Pins

https://elinux.org/Jetson_Nano#Carriers

Provide connector of NANO board photo here (with URL)

Provide NANO pin connectivity table here (with URL)



40-pin Header - (3x) I2C, (2x) SPI, UART, I2S, GPIOs

Tx2 Board 40-Pin Connector (Header) Pins

https://elinux.org/Jetson_Nano#Carriers

Provide connector of Tx2 board photo here
(with URL)

Provide pin connectivity table here
(with URL)

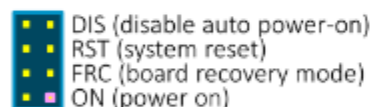
NANO J41 Pin Out

Developer Board



Serial 3.3V, 115200 8N1

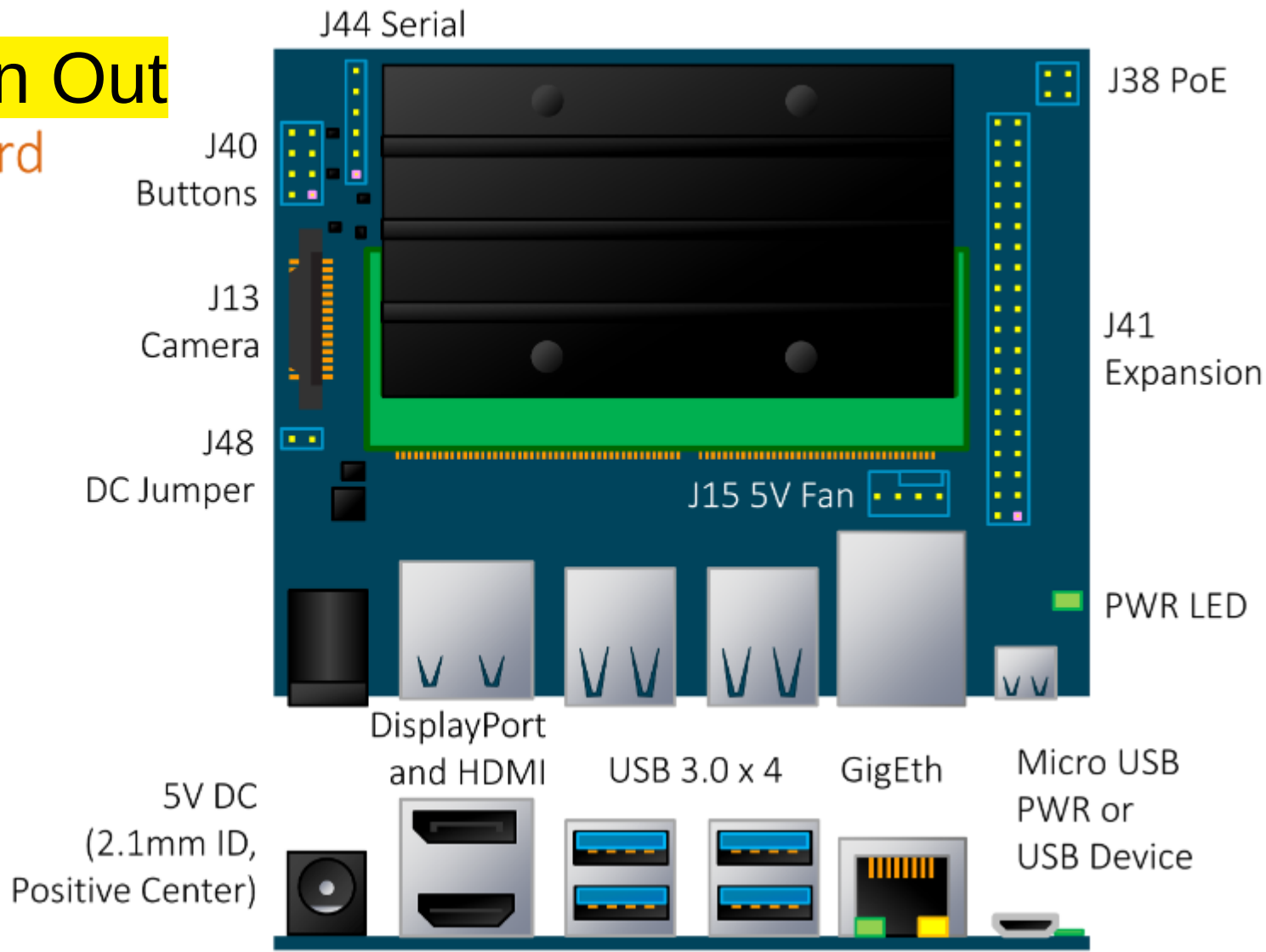
Buttons



Fan



Pinouts



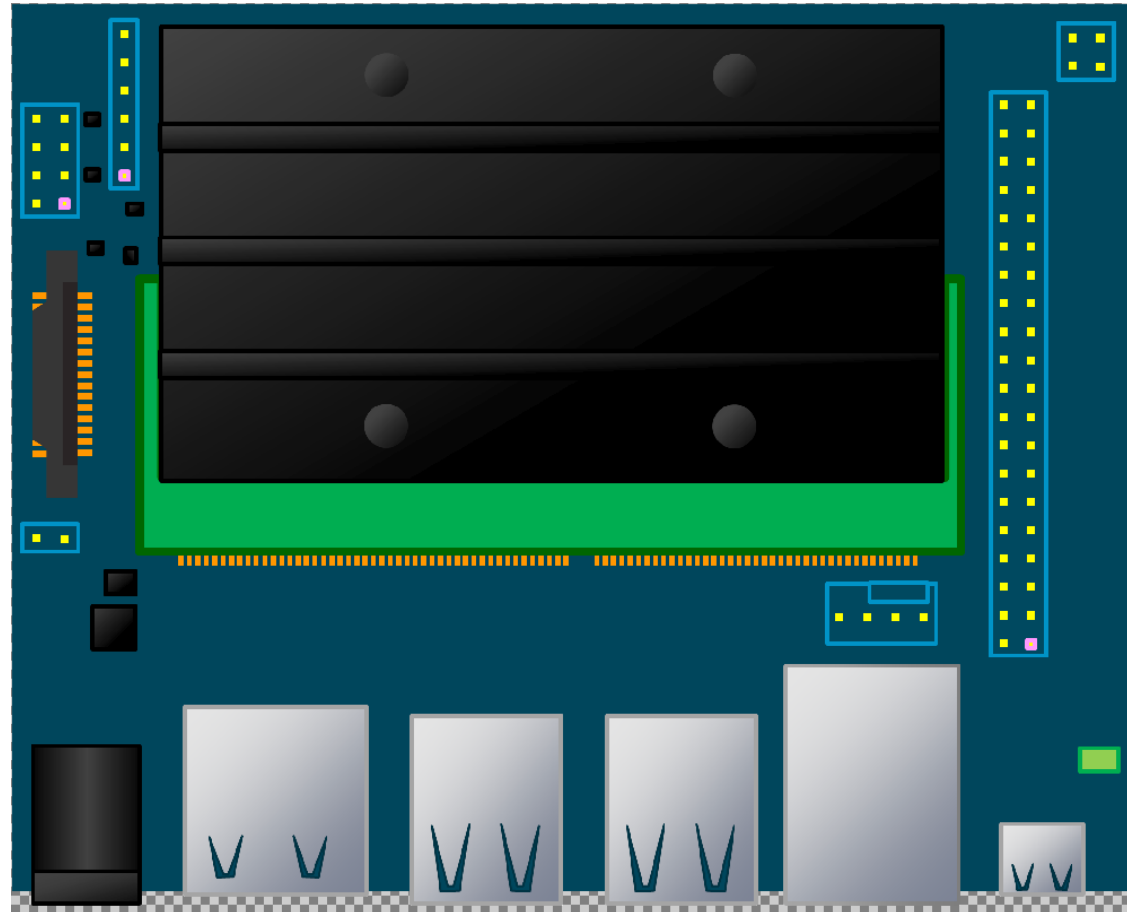
NANO J41

Pin Out

<https://www.element14.com/community/community/designcenter/single-board-computers/blog/2019/05/21/nvidia-jetson-nano-developer-kit-pinout-and-diagrams>

Alt Function	Linux(BCM)	Board Label	Board Label	Linux(BCM)	Alt Function
DAP4_DOUT	78(21)	D21	40 39	GND	
DAP4_DIN	77(20)	D20	38 37	D26	12(26) SPI2_MOSI
UART2_CTS	51(16)	D16	36 35	D19	76(19) DAP4_FS
		GND	34 33	D13	38(13) GPIO_PE6
LCD_BL_PWM	168(12)	D12	32 31	D6	200(6) GPIO_PZ0
		GND	30 29	D5	149(5) CAM_AF_EN
		D1/ID_SC	28 27	D0/ID_SD	
SPI1_CS1	20(7)	D7	26 25	GND	
SPI1_CS0	19(8)	D8	24 23	D11	18(11) SPI1_SCK
SPI2_MISO	13(25)	D25	22 21	D9	17(9) SPI1_MISO
		GND	20 19	D10	16(10) SPI1_MOSI
SPI2_CS0	15(24)	D24	18 17	3.3V	
SPI2_CS1	232(23)	D23	16 15	D22	194(22) LCD_TE
		GND	14 13	D27	14(27) SPI2_SCK
DAP4_SCLK	79(18)	D18	12 11	D17	50(17) UART2_RTS
		RXD/D15	10 9	GND	
		TXD/D14	8 7	D4	216(4) AUDIO_MCLK
		GND	6 5	SCL/D3	
		5V	4 3	SDA/D2	
		5V	2 1	3.3V	

NANO 3D CAD Design



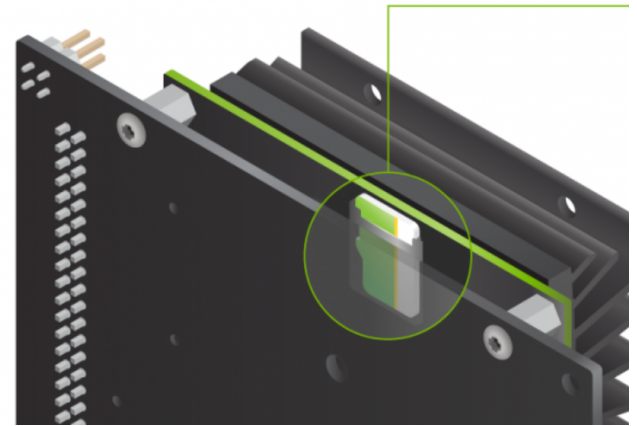
Appendix NANO Getting Started with SD Card

<https://developer.nvidia.com/embedded/learn/get-started-jetson-nano-devkit>

Setup your devkit and format the MicroSD card, a computer with Internet connection and the ability to flash your microSD card is also required.

Step 1. Write Image to the microSD Card. You'll need a computer with Internet connection and the ability to read and write SD cards, either via a built-in SD card slot or adapter. Download the Jetson Nano Developer Kit SD Card Image from Nvidia developer site, Write the image to your microSD card by following the instructions from NVDA developer site.

Step 2. Setup and First Boot by either 1) with display, keyboard and mouse attached to NANO, or 2) in "headless mode" via connection from your host computer.



Buzzer PCB Design for Nvidia TX2

TMB12A05

Specifications: <https://osoyoo.com/2017/05/05/buzzer-5v-breadboard-friendlytmb12a05/>

Datasheet: <https://www.quick-teck.co.uk/Management/EEUploadFile/1420788438.pdf>

12MM round speaker that operates in audible 2Khz range

layout

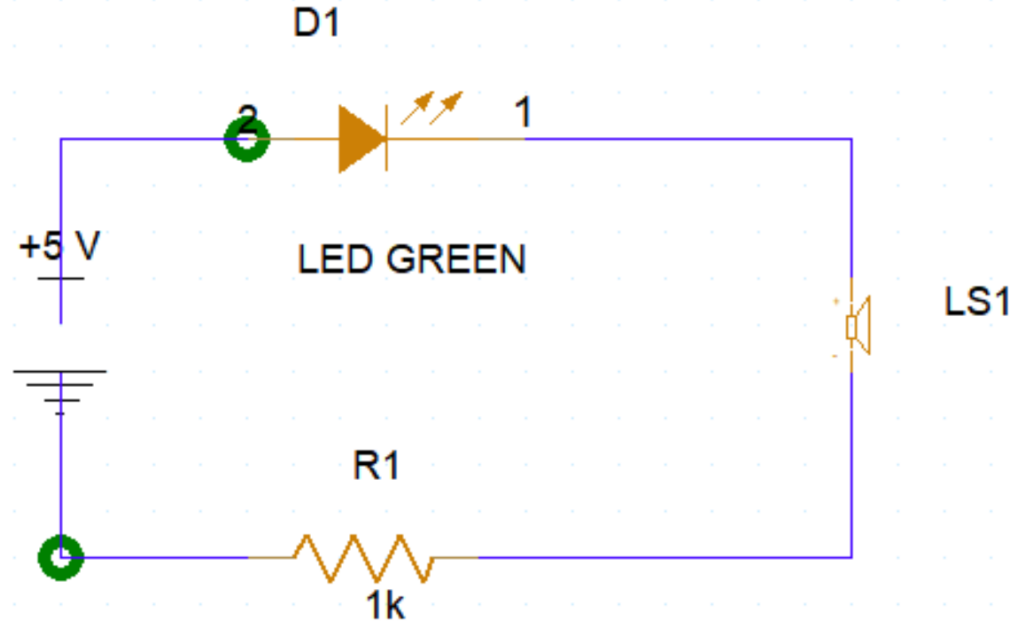


TECHNICAL DETAILS

- Sound-making Type : Continuous Sound;
- Rated Voltage : DC 5V
- OPERATING VOLTAGE: DC 4~7V
- Body Size(Terminal not included) : 12 x 9.5mm / 0.47"x 0.37"(D*T);
- Terminal Pitch : 7.6mm / 0.29";
- Sound Output : ≥85dB
- External Material : Plastic;
- Frequency : 2300+/-300Hz
- Current: : 30mA;
- Operating Temperature: -20~+85°C
- Color : Black
- Weight : 8g
- DIMENSION:(UNIT:mm)

Schematic Design

Buzzer Design



Design Specs

#	Part Name	Part Number/Value
1	Green LED	0805 SMD
2	Buzzer audio speaker	SQ601-BP
3	Resister	1K ohm