n-PRO-3DP

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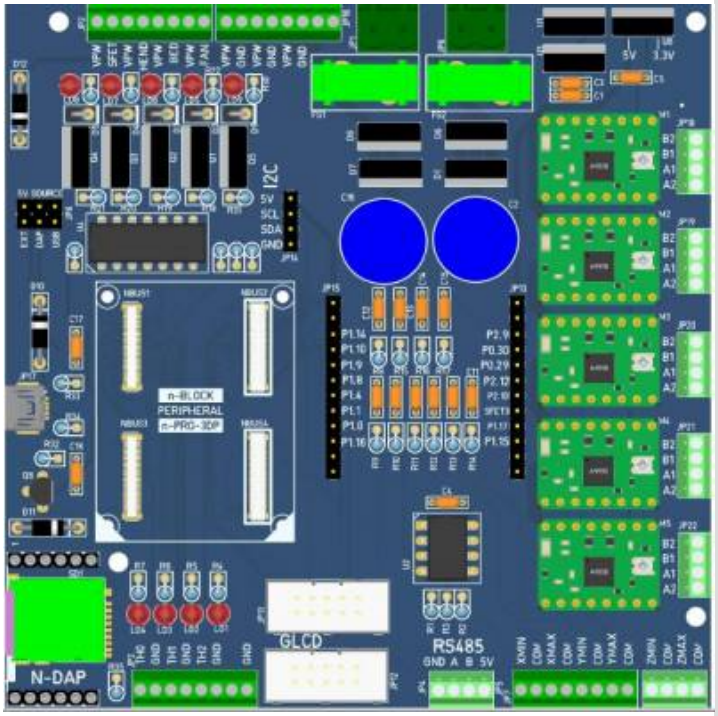
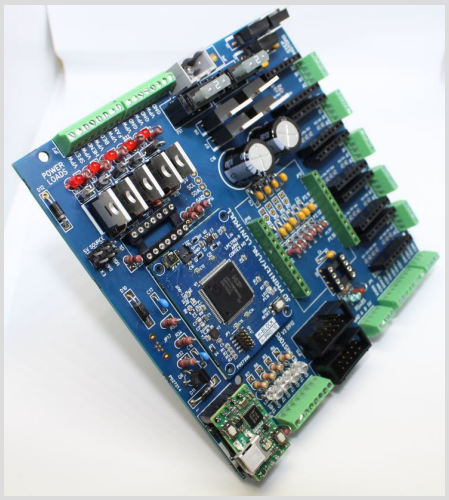
n-PRO-3DP

ni-PRO-3DP is a motherboard from the n-Blocks family especially suitable for the control of small and medium sized 3D printers/CNC/Laser.



ni-PRO-3DP



ni-PRO-3DP

License	GPL 2.0
Status	Tested
Buy at:	
Categories	
Hardware repo	Bitbucket
Firmware repo	Bitbucket

1. Overview

ni-PRO-3DP is a motion controll board that is integrated with the mighty function of n-Blocks-PRO. The most attractive feature of this board is the streamlined interfaces, which help us to avoid the unnecessary troubles in handling the multiple motors, heaters, fans, end-stop switches, thermistors and sensors. Compact layout design allow us to integrate all required functionality in small space. The versatile screw-terminals, support simple setup for all sort of stepping-motor/motion/power applications.

Applications

- CNC milling
- Laser cutting

- 3D printing or any Industrial or commercial custom robotic control application.

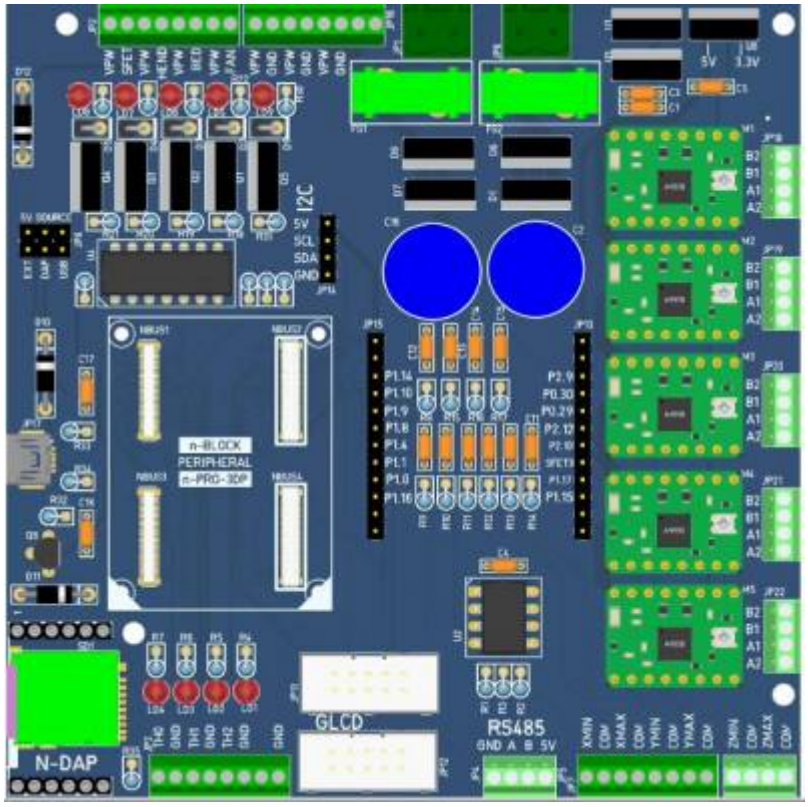
Main Features Of The Board

- Different processor can be integrated by plugging nBlocksPRO boards for LPC1768, STM32F103,F401,...
- Many options of StepsticK stepping-motor drivers can be used, including Super quiet Silent-Stepsticks
- Convenient for users to DIY and secondary development
- Four Hirose DF30-series 60-pin low profile connectors
- n-DAP can be integrated for convenient firmware development/Debugging
- Modular, event-driven design, allowing to add functionality easily, when used with nBlocksStudio
- Smoothieware compatibility

- Easy to use and configure.
- Smooth, jerk-free motion and enabling higher speeds
- Can be used for CNC milling, laser cutting, and 3D printing
- SD-Card support for configuration and executing G-code
- Composite USB Mass Storage + Serial interface to host

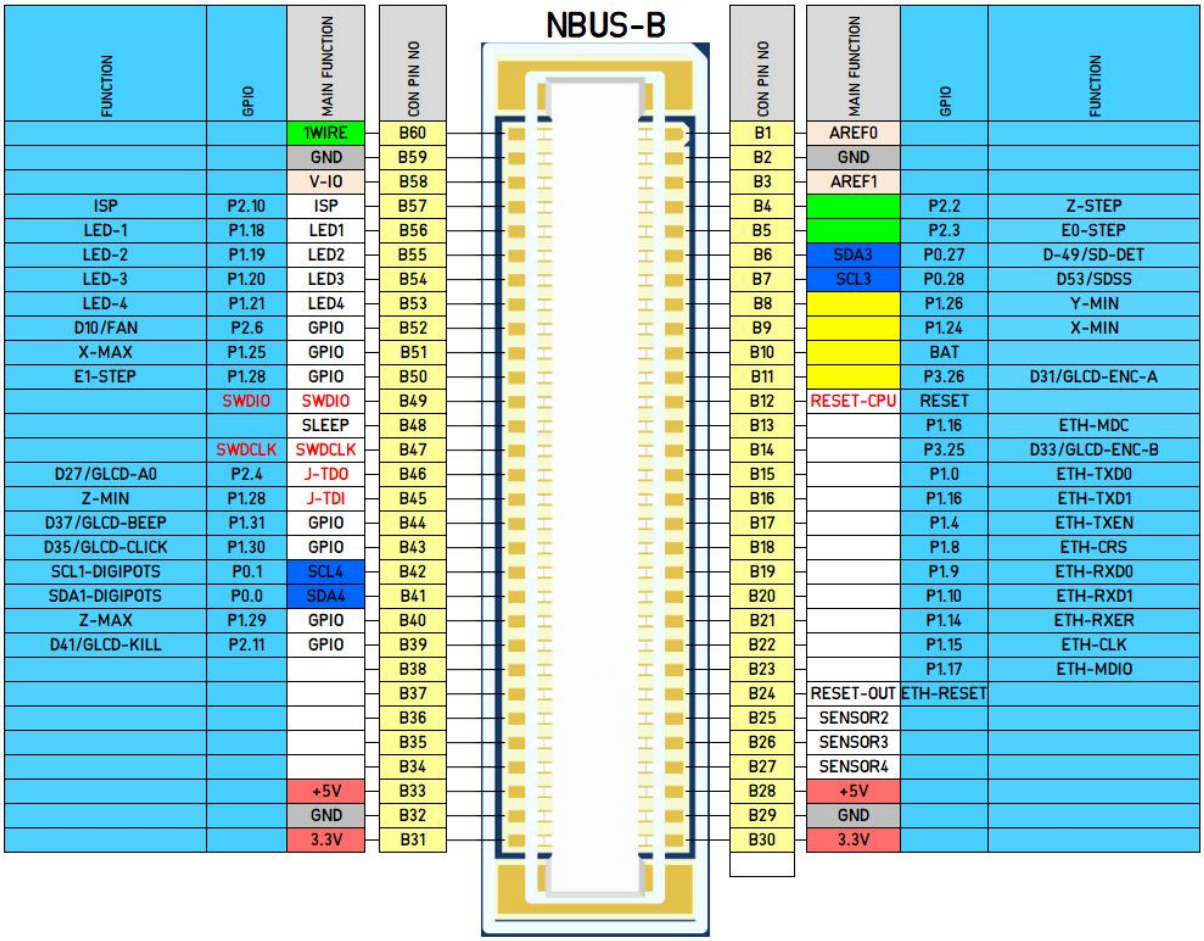
Board Pinout

n-PRO-3DP is a **PERIPHERAL** board with four Hirose DF30-series 60-pin low profile connectors at top side,

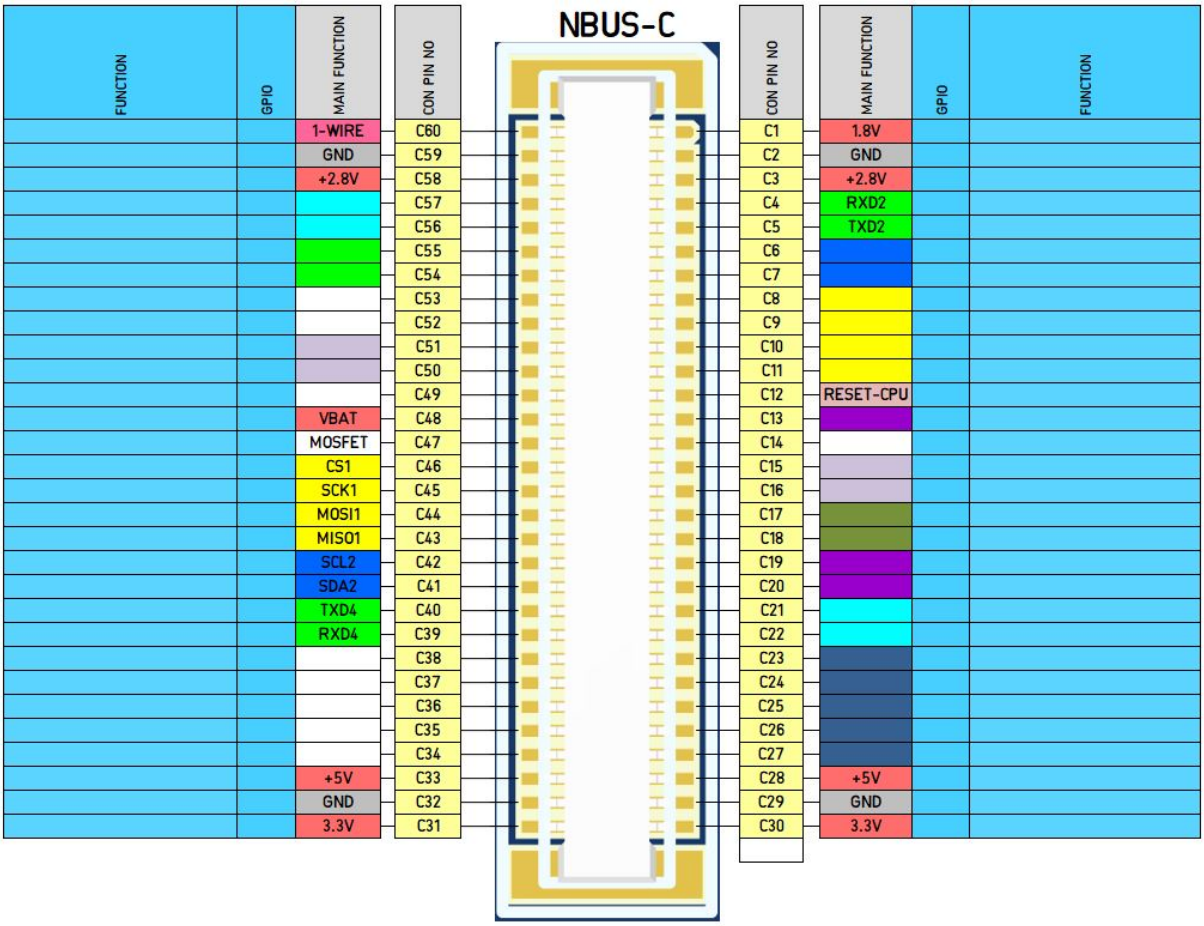

I2C
5V
SCL
SDA
GND
n-BLOCK
PERIPHERAL
n-PRO-3DP
GLCD
RS485
GND A B 5V
N-DAP

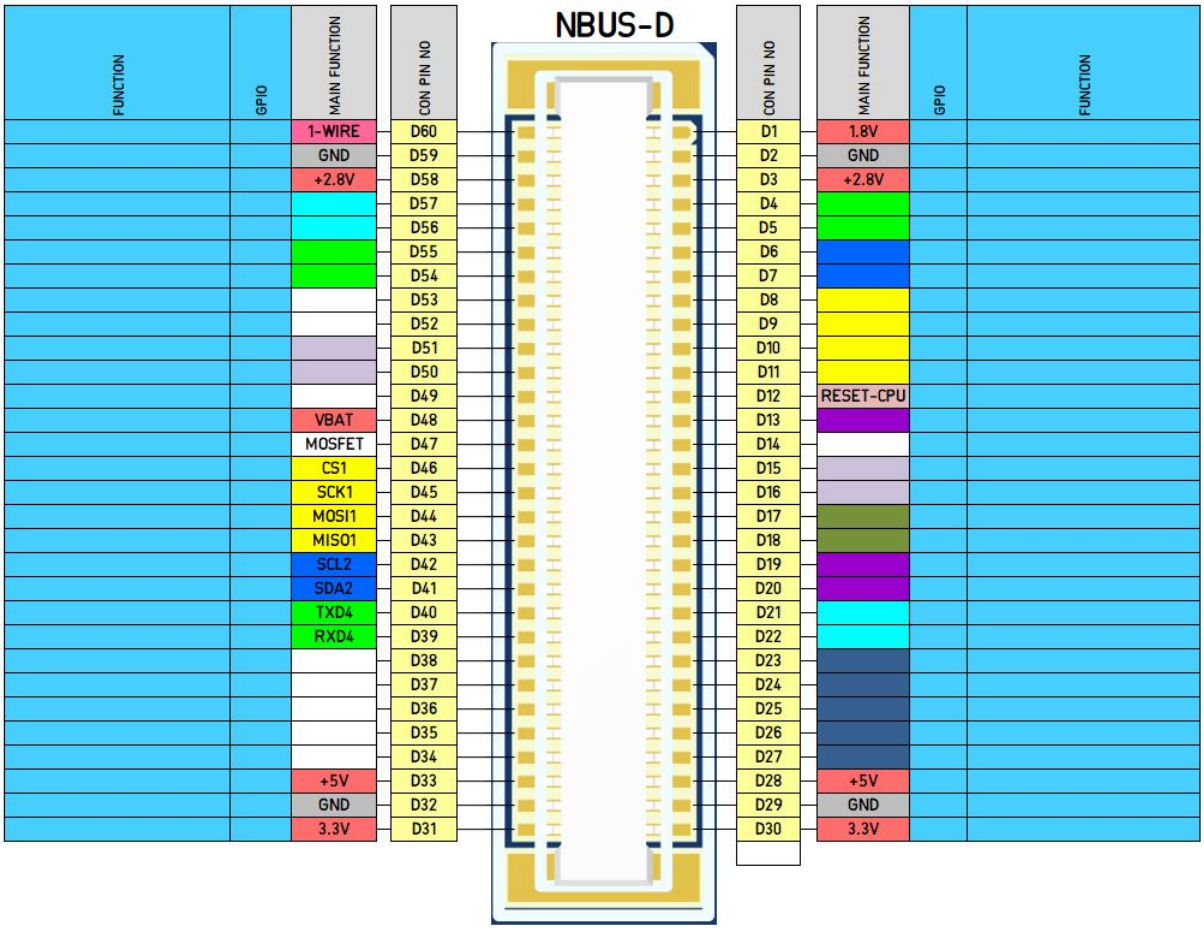
NBUS-A

FUNCTION	GPIO	MAIN FUNCTION	CON PIN NO		CON PIN NO	MAIN FUNCTION	GPIO	FUNCTION
		1-WIRE	A60		A1	1.8V		
		GND	A59		A2	GND		
		+2.8V	A58		A3	+2.8V		
X-EN	P0.4	CAN2-RD	A57		A4	RXD1	P2.0	X-STEP
X-DIR	P0.5	CAN2-TD	A56		A5	TXD1	P2.1	Y-STEP
PRINTF-RX	P0.3	RXD0	A55		A6	SDA1	P0.10	Y-EN
PRINTF-TX	P0.2	TXD0	A54		A7	SCL1	P0.11	Y-DIR
FET-L-2 / D8-BED	P2.5	PWM1	A53		A8	MISO0	P0.17	D50-MISO
FET-S-3	P1.22	PWM2	A52		A9	MOSI0	P0.18	D51-MOSI
THERMISTOR3	P0.26	ADC3	A51		A10	SCK0	P0.15	D52-SCK
THERMISTOR2-SOFTDIR	P0.25	ADC2	A50		A11	SS0	P0.16	D25-GLCD-CS
Y-MAX-D50	P1.27	CLKOUT	A49		A12	RESET-CPU	RESET	
	VBAT	VBAT	A48		A13	USB-CON	P2.9	
FET-L1 / D9-HEND	P2.7	MOSFET	A47		A14	QENCB	P1.23	LED4 FET-LARGET3 HEND2
SS1	P0.6	CS1	A46		A15	ADC0	P0.23	THERMISTOR0-SOFTRX
SCK1	P0.7	SCK1	A45		A16	ADC1	P0.24	THERMISTOR1-SOFTTX
MOSI1	P0.9	MOSI1	A44		A17	EINT3	P2.13	E1-DIR
MISO1	P0.8	MISO1	A43		A18	EINT2	P2.12	P2.12-KILL
Z-DIR	P0.20	SCL2	A42		A19	USB-DP	P0.29	USBD+
Z-EN	P0.19	SDA2	A41		A20	USB-DN	P0.30	USBD-
PLAY-LED/DRIVER5	P4.28	TXD4	A40		A21	CAN1-TD	P0.22	E0-DIR
E1-EN	P4.29	RXD4	A39		A22	CAN1-RD	P0.21	E0-EN
			A38		A23	SLEEP		
			A37		A24	SENSOR1		DRIVER1
			A36		A25	SENSOR2		DRIVER2
			A35		A26	SENSOR3		DRIVER3
			A34		A27	SENSOR4		DRIVER4
		+5V	A33		A28	+5V		
		GND	A32		A29	GND		
		3.3V	A31		A30	3.3V		



FUNCTION	GPIO	MAIN FUNCTION	CON PIN NO	CON PIN NO	MAIN FUNCTION	GPIO	FUNCTION
		1WIRE	B60	B1	AREF0		
		GND	B59	B2	GND		
		V-IO	B58	B3	AREF1		
ISP	P2.10	ISP	B57	B4		P2.2	Z-STEP
LED-1	P1.18	LED1	B56	B5		P2.3	E0-STEP
LED-2	P1.19	LED2	B55	B6	SDA3	P0.27	D-49/SD-DET
LED-3	P1.20	LED3	B54	B7	SCL3	P0.28	D53/SDSS
LED-4	P1.21	LED4	B53	B8		P1.26	Y-MIN
D10/FAN	P2.6	GPIO	B52	B9		P1.24	X-MIN
X-MAX	P1.25	GPIO	B51	B10		BAT	
E1-STEP	P1.28	GPIO	B50	B11		P3.26	D31/GLCD-ENC-A
	SWDIO	SWDIO	B49	B12	RESET-CPU	RESET	
		SLEEP	B48	B13		P1.16	ETH-MDC
	SWDCLK	SWDCLK	B47	B14		P3.25	D33/GLCD-ENC-B
D27/GLCD-A0	P2.4	J-TDO	B46	B15		P1.0	ETH-TXD0
Z-MIN	P1.28	J-TDI	B45	B16		P1.16	ETH-TXD1
D37/GLCD-BEEP	P1.31	GPIO	B44	B17		P1.4	ETH-TXEN
D35/GLCD-CLICK	P1.30	GPIO	B43	B18		P1.8	ETH-CRS
SCL1-DIGIPOTS	P0.1	SCL4	B42	B19		P1.9	ETH-RXD0
SDA1-DIGIPOTS	P0.0	SDA4	B41	B20		P1.10	ETH-RXD1
Z-MAX	P1.29	GPIO	B40	B21		P1.14	ETH-RXER
D41/GLCD-KILL	P2.11	GPIO	B39	B22		P1.15	ETH-CLK
			B38	B23		P1.17	ETH-MDIO
			B37	B24	RESET-OUT	ETH-RESET	
			B36	B25	SENSOR2		
			B35	B26	SENSOR3		
			B34	B27	SENSOR4		
		+5V	B33	B28	+5V		
		GND	B32	B29	GND		
		3.3V	B31	B30	3.3V		


NBUS-C
FUNCTION
GPIO
MAIN FUNCTION
CON PIN NO
1-WIRE C60
GND C59
+2.8V C58
C57
C56
C55
C54
C53
C52
C51
C50
C49
VBAT C48
MOSFET C47
CS1 C46
SCK1 C45
MOSI1 C44
MISO1 C43
SCL2 C42
SDA2 C41
TXD4 C40
RXD4 C39
C38
C37
C36
C35
C34
+5V C33
GND C32
3.3V C31
C1 1.8V
C2 GND
C3 +2.8V
C4 RXD2
C5 TXD2
C6
C7
C8
C9
C10
C11
C12 RESET-CPU
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28 +5V
C29 GND
C30 3.3V



Related articles in this Wiki

- ni-pro-3dp

RF, CPU, nblock, BLE, nsensorRF

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