UNO R3			UNO R4	
Interface	#	Description	#	Description
			8	PWM Timers (2 * 32bits / 6 * 16bits)
Timer 16 bits	3	Timers (2 * 8bits / 1 * 16bits)	2	
RealTime counter	1		1	
PWM channel	6		8	
ADC channels	6	ADC 10 bit. PDIP package	1	ADC 14 Bits
Serial USART	1		4	
SPI Interface	1		2	
WD Timer	1		1	
Analog comparator	1	On chip	2	Analog Comparator 8 bits
Interrupt and Wake Up on pin change	1		1	
I2C	1		2	
			1	DAC 12 bits

JANALOG

UNO R3								UNO R4						
Pin	Function	Type	Direction	Pull-Up	Description for GRBL	CPU Channel	Bit	Pin	Function	Type	Direction	Pull-Up	Description for GRBL	CPU Pin (Pxx)
1	NC	NC						1	BOOT	NC			MD	201
2	IOREF	IOREF						2	IOREF	IOREF			Reference for digital logic V - connected to 5 V	
3	Reset	Reset				C	6	3	Reset	Reset			Reset	
4	+3V3	Power						4	+3V3	Power			+3V3 Power Rail	
5	+5V	Power						5	+5V	Power			+5V Power Rail	
6	GND	Power						6	GND	Power			Ground	
7	GND	Power						7	GND	Power			Ground	
8	VIN	Power						8	VIN	Power			Voltage Input	
9	A0	GPIO	In	yes	Abort (1)	C	0	9	A0	GPIO ?	In	yes	Reset / Abort	14
10	A1	GPIO	In	yes	Feed Hold	C	1	10	A1	GPIO ?	In	yes	Feed Hold	0
11	A2	GPIO	In	yes	Resume (2)	C	2	11	A2	GPIO ?	In	yes	Cycle Start / Resume	1
12	A3	GPIO	Out		Coolant Enable	C	3	12	A3	GPIO ?	Out		Coolant Enable	2
13	A4 / SDA	Analog			not used (reserved)	C	4	13	A4	Analog			not used (reserved)	101
14	A5 / SCL	Analog			not used (reserved)	C	5	14	A5	Analog			not used (reserved)	100

(1)	In	named : RESET_BIT
(2)	In	named : CYCLE_START_BIT

JDIGITAL

UNO R3

Pin	Function	Type	Direction	Pull-Up	Description for GRBL	CPU Channel	Bit	Interrupt on Bit change
1	D0	Digital / GPIO				D	0	
2	D1	Digital / GPIO				D	1	
3	D2	Digital / GPIO	Out		Step Pulse X-Axis	D	2	
4	D3	Digital / GPIO	Out		Step Pulse Y-Axis	D	3	
5	D4	Digital / GPIO	Out		Step Pulse Z-Axis	D	4	
6	D5	Digital / GPIO	Out		Direction Pulse X-Axis	D	5	
7	D6	Digital / GPIO	Out		Direction Pulse Y-Axis	D	6	
8	D7	Digital / GPIO	Out		Direction Pulse Z-Axis	D	7	
9	D8	Digital / GPIO	Out		Stepper enable/Disable	B	0	
10	D9	Digital / GPIO	In	yes	Limit Pulse X-Axis	B	1	yes
11	SS	Digital	In	yes	Limit Pulse Y-Axis	B	2	yes
12	MOSI	Digital			See below : Spindle Control			
13	MISO	Digital						
14	SCK	Digital						
15	GND	Power						
16	AREF	Digital						
17	A4 / SD4	Digital				C	4	
18	A5 / SD5	Digital				C	5	

UNO R4

Pin	Function	Type	Direction	Pull-Up	Description for GRBL	CPU Pin (Pxx)	Interrupt on Bit change
1	D0 / TX0	Digital				301	
2	D1 / TX0	Digital				302	
3	D2	Digital	Out		Step Pulse X-Axis	104	
4	D3	Digital	Out		Step Pulse Y-Axis	105	
5	D4	Digital	Out		Step Pulse Z-Axis	106	
6	D5	Digital	Out		Direction Pulse X-Axis	107	
7	D6	Digital	Out		Direction Pulse Y-Axis	111	
8	D7	Digital	Out		Direction Pulse Z-Axis	112	
9	D8	Digital	Out		Stepper enable/Disable	304	
10	D9	Digital	In	yes	Limit Pulse X-Axis	303	
11	D10 / CS / CANTX0	Digital	In	yes	Limit Pulse Y-Axis	103	
12	D11 / COPI	Digital	In	yes	Limit Pulse Z-Axis	411	
13	D12 / CIPO	Digital	Out		Spindle Enable	410	
14	D13 / SCK / CANRX0	Digital	Out		Spindle Direction	102	
15	GND	Power					
16	AREF	Digital				10	
17	SDA	Digital				101	
18	SCL	Digital				100	

Variable Spindle

	Direction	Pull-Up	Description	CPU Channel	Bit	
				B	3	
	In	yes	Limit Pulse Z-Axis	B	4	
	Out		Spindle Direction	B	5	

Normal Spindle (in config.h   #define VARIABLE_SPINDLE is commented out)

	Direction	Pull-Up	Description	CPU Channel	Bit	Interrupt
	In	yes	Limit Pulse Z-Axis	B	3	yes
To be checked	Out		Spindle Enable	B	4	
	Out		Spindle Enable	B	5	

E-Stop

Connected to RST button in CNC

LEDs

UNO R3			UNO R4	
Function	**CPU Channel**	**Bit**	**Function**	**CPU Pin (Pxx)**
Built In	B	5	Built In	102
TX	ATMEGA16U2-MU(R) D	5	TX	109
RX	ATMEGA16U2-MU(R) D	4	RX	GPIO 43 (ESP32-S3)