6.13 Extension connectors

For each STM32 Nucleo-144 board the following figures show the signals connected by default to the ST Zio connectors (CN7, CN8, CN9, CN10), including the support for Arduino Uno Revision 3.

Figure 11. NUCLEO-F767ZI, NUCLEO-F746ZG, NUCLEO-F429ZI, NUCLEO-F207ZG

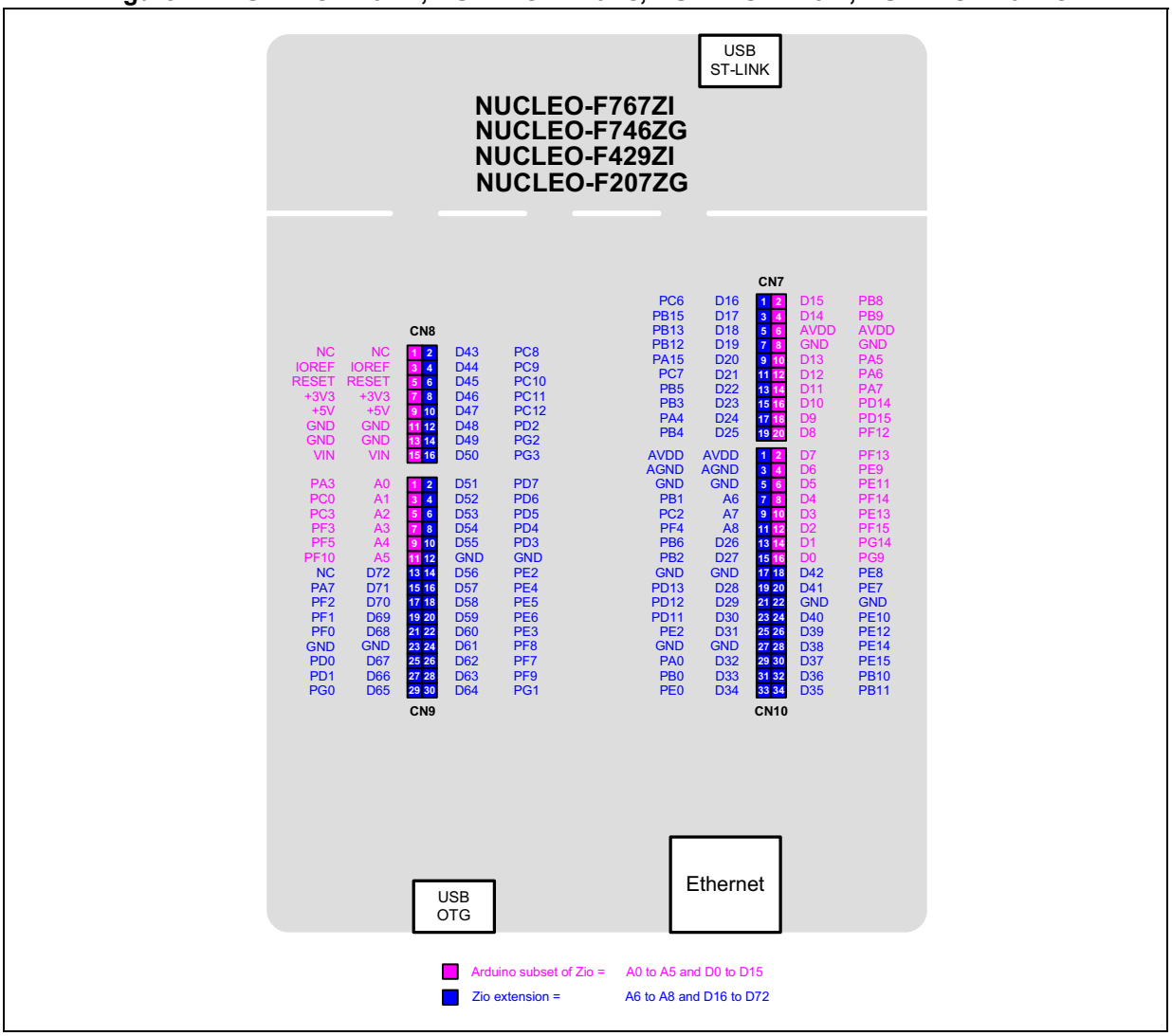

Table 16. NUCLEO-F429ZI pin assignments

Connector	Pin	Pin name	Signal name	STM32 pin	Function	Remark
Left connectors						
CN8	1	NC	NC	-	-	Arduino support
	3	IOREF	IOREF		3.3V Ref	
	5	RESET	RESET	NRST	RESET	
	7	+3V3	+3V3	-	3.3V input/output	
	9	+5V	+5V		5V output	
	11	GND	GND		Ground	
	13	GND	GND			
	15	VIN	VIN		Power input	
	2	D43	SDMMC_D0	PC8	SDMMC/I2S_A	-
	4	D44	SDMMC_D1/ I2S_A_CKIN	PC9	I/O	
	6	D45	SDMMC_D2	PC10		
	8	D46	SDMMC_D3	PC11		
	10	D47	SDMMC_CK	PC12		
	12	D48	SDMMC_CMD	PD2		
	14	D49	I/O	PG2		
	16	D50	I/O	PG3		
CN9	1	A0	ADC	PA3	ADC123_IN3	Arduino support
	3	A1	ADC	PC0	ADC123_IN10	
	5	A2	ADC	PC3	ADC123_IN13	
	7	A3	ADC	PF3	ADC3_IN9	
	9	A4	ADC	PF5 or PB9(1)	ADC3_IN15 (PF5) or I2C1_SDA (PB9)	
	11	A5	ADC	PF10 or PB8(1)	ADC3_IN8 (PF10) or I2C1_SCL (PB8)	
	13	D72	NC	-	-	-
	15	D71	I/O	PA7(2)	I/O	
	17	D70	I2C_B_SMBA	PF2	I2C_2	
	19	D69	I2C_B_SCL	PF1		

Table 16. NUCLEO-F429ZI pin assignments (continued)

Connector	Pin	Pin name	Signal name	STM32 pin	Function	Remark
CN9	21	D68	I2C_B_SDA	PF0	I2C_2	-
	23	GND	GND	-	Ground	
	25	D67	CAN_RX	PD0	CAN_1	
	27	D66	CAN_TX	PD1		
	29	D65	I/O	PG0	I/O	
	2	D51	USART_B_SCLK	PD7	USART_2	
	4	D52	USART_B_RX	PD6		
	6	D53	USART_B_TX	PD5		
	8	D54	USART_B_RTS	PD4		
	10	D55	USART_B_CTS	PD3		
	12	GND	GND	-	Ground	
	14	D56	SAI_A_MCLK	PE2(3)	SAI_1_A	
	16	D57	SAI_A_FS	PE4		
	18	D58	SAI_A_SCK	PE5		
	20	D59	SAI_A_SD	PE6		
	22	D60	SAI_B_SD	PE3	SAI_1_B	
	24	D61	SAI_B_SCK	PF8		
	26	D62	SAI_B_MCLK	PF7		
	28	D63	SAI_B_FS	PF9		
	30	D64	I/O	PG1	I/O	
Right Connectors						
CN7	1	D16	I2S_A_MCK	PC6	I2S_2	-
	3	D17	I2S_A_SD	PB15		
	5	D18	I2S_A_CK	PB13(4)		
	7	D19	I2S_A_WS	PB12		
	9	D20	I2S_B_WS	PA15	I2S_3 / SPI3	
	11	D21	I2S_B_MCK	PC7		
	13	D22	I2S_B_SD/ SPI_B_MOSI	PB5		
	15	D23	I2S_B_CK/ SPI_B_SCK	PB3		
	17	D24	SPI_B_NSS	PA4		

Table 16. NUCLEO-F429ZI pin assignments (continued)

Connector	Pin	Pin name	Signal name	STM32 pin	Function	Remark
CN7	19	D25	SPI_B_MISO	PB4	I2S_3 / SPI3	-
	2	D15	I2C_A_SCL	PB8	I2C1_SCL	Arduino support
	4	D14	I2C_A_SDA	PB9	I2C1_SDA	
	6	AREF	AREF	-	AVDD/VREF+	
	8	GND	GND		Ground	
	10	D13	SPI_A_SCK	PA5	SPI1_SCK	
	12	D12	SPI_A_MISO	PA6	SPI1_MISO	
	14	D11	SPI_A_MOSI/ TIM_E_PWM1	PA7(1)(2) or PB5(1)	SPI1_MOSI/ TIM14_CH1	
	16	D10	SPI_A_CS/ TIM_B_PWM3	PD14	SPI1_CS/ TIM4_CH3	
	18	D9	TIMER_B_PWM2	PD15	TIM4_CH4	
	20	D8	I/O	PF12	-	
CN10	1	AVDD	AVDD	-	Analog VDD	-
	3	AGND	AGND		Analog Ground	
	5	GND	GND		Ground	
	7	A6	ADC_A_IN	PB1	ADC12_IN9	
	9	A7	ADC_B_IN	PC2	ADC123_IN12	
	11	A8	ADC_C_IN	PF4	ADC3_IN14	
	13	D26	I/O	PB6	I/O	
	15	D27	I/O	PB2		
	17	GND	GND	-	Ground	
	19	D28	I/O	PD13	I/O	
	21	D29	I/O	PD12		
	23	D30	I/O	PD11		
	25	D31	I/O	PE2(3)		
	27	GND	GND	-	Ground	
	29	D32	TIMER_C_PWM1	PA0	TIM2_CH1	
	31	D33	TIMER_D_PWM1	PB0	TIM3_CH3	
	33	D34	TIMER_B_ETR	PE0	TIM4_ETR	
	2	D7	I/O	PF13	-	Arduino support

Table 16. NUCLEO-F429ZI pin assignments (continued)

Connector	Pin	Pin name	Signal name	STM32 pin	Function	Remark
CN10	4	D6	TIMER_A_PWM1	PE9	TIM1_CH1	Arduino support
	6	D5	TIMER_A_PWM2	PE11	TIM1_CH2	
	8	D4	I/O	PF14	-	
	10	D3	TIMER_A_PWM3	PE13	TIM1_CH3	
	12	D2	I/O	PF15	-	
	14	D1	USART_A_TX	PG14	USART6	
	16	D0	USART_A_RX	PG9		
	18	D42	TIMER_A_PWM1N	PE8	TIM1_CH1N	-
	20	D41	TIMER_A_ETR	PE7	TIM1_ETR	
	22	GND	GND	-	Ground	
	24	D40	TIMER_A_PWM2N	PE10	TIM1_CH2N	
	26	D39	TIMER_A_PWM3N	PE12	TIM1_CH3N	
	28	D38	I/O	PE14	I/O	
	30	D37	TIMER_A_BKIN1	PE15	TIM1_BKIN1	
	32	D36	TIMER_C_PWM2	PB10	TIM2_CH3	
	34	D35	TIMER_C_PWM3	PB11	TIM2_CH4	

1. For more details refer to *Table 11: Solder bridges*.
2. PA7 is used as D11 and connected to CN7 pin 14 by default. If JP6 is ON, it is also connected to both Ethernet PHY as RMII_DV and CN9 pin 15. In this case only one function of the Ethernet or D11 must be used.
3. PE2 is connected to both CN9 pin 14 (SAI_A_MCLK) and CN10 pin 25 (I/O). Only one function must be used at one time.
4. PB13 is used as I2S_A_CK and connected to CN7 pin 5 by default. If JP7 is ON, it is also connected to the Ethernet PHY as RMII_TXD1. In this case only one function of the Ethernet or I2S_A must be used.

Table 18. ST morpho connector for NUCLEO-F207ZG, NUCLEO-F412ZG, NUCLEO-F429ZI, NUCLEO-F446ZE, NUCLEO-F746ZG, NUCLEO-F767ZI

CN11 odd pins		CN11 even pins		CN12 odd pins		CN12 even pins	
Pin	Pin name	Pin	Pin name	Pin	Pin name	Pin	Pin name
1	PC10	2	PC11	1	PC9	2	PC8
3	PC12	4	PD2	3	PB8	4	PC6
5	VDD	6	E5V	5	PB9	6	PC5
7	BOOT0(1)	8	GND	7	AVDD	8	U5V(2)
9	PF6	10	-	9	GND	10	PD8
11	PF7	12	IOREF	11	PA5	12	PA12
13	PA13(3)	14	RESET	13	PA6	14	PA11
15	PA14(3)	16	+3V3	15	PA7	16	PB12
17	PA15	18	+5V	17	PB6	18	PB11
19	GND	20	GND	19	PC7	20	GND
21	PB7	22	GND	21	PA9	22	PB2
23	PC13	24	VIN	23	PA8	24	PB1
25	PC14	26	-	25	PB10	26	PB15
27	PC15	28	PA0	27	PB4	28	PB14
29	PH0	30	PA1	29	PB5	30	PB13
31	PH1	32	PA4	31	PB3	32	AGND
33	VBAT	34	PB0	33	PA10	34	PC4
35	PC2	36	PC1	35	PA2	36	PF5
37	PC3	38	PC0	37	PA3	38	PF4
39	PD4	40	PD3	39	GND	40	PE8
41	PD5	42	PG2	41	PD13	42	PF10
43	PD6	44	PG3	43	PD12	44	PE7
45	PD7	46	PE2	45	PD11	46	PD14
47	PE3	48	PE4	47	PE10	48	PD15
49	GND	50	PE5	49	PE12	50	PF14
51	PF1	52	PF2	51	PE14	52	PE9
53	PF0	54	PF8	53	PE15	54	GND
55	PD1	56	PF9	55	PE13	56	PE11
57	PD0	58	PG1	57	PF13	58	PF3
59	PG0	60	GND	59	PF12	60	PF15
61	PE1	62	PE6	61	PG14	62	PF11
63	PG9	64	PG15	63	GND	64	PE0
65	PG12	66	PG10	65	PD10	66	PG8

Table 18. ST morpho connector for NUCLEO-F207ZG, NUCLEO-F412ZG, NUCLEO-F429ZI, NUCLEO-F446ZE, NUCLEO-F746ZG, NUCLEO-F767ZI (continued)

CN11 odd pins		CN11 even pins		CN12 odd pins		CN12 even pins	
Pin	Pin name	Pin	Pin name	Pin	Pin name	Pin	Pin name
67	-	68	PG13	67	PG7	68	PG5
69	PD9	70	PG11	69	PG4	70	PG6

1. Default state of BOOT0 is 0. It can be set to 1 when a jumper is plugged on the pins 5-7 of CN11.
2. U5V is the 5 V power coming from the ST-LINKV2-1 USB connector that rises before and it rises before the +5V rising on the board.
3. PA13 and PA14 are shared with SWD signals connected to ST-LINK/V2-1. If ST-LINK part is not cut, it is not recommended to use them as I/O pins.

Table 19. ST morpho connector for NUCLEO-F303ZE

CN11 odd pins		CN11 even pins		CN12 odd pins		CN12 even pins	
Pin	Name	Pin	Name	Pin	Name	Pin	Name
1	PC10	2	PC11	1	PC9	2	PC8
3	PC12	4	PD2	3	PB8	4	PC6
5	VDD	6	E5V	5	PB9	6	PC5
7	BOOT0(1)	8	GND	7	AVDD	8	U5V(2)
9	PF6	10	-	9	GND	10	PD8
11	PF7	12	IOREF	11	PA5	12	PA12
13	PA13(3)	14	RESET	13	PA6	14	PA11
15	PA14(3)	16	+3V3	15	PA7	16	PB12
17	PA15	18	+5V	17	PB6	18	PB11
19	GND	20	GND	19	PC7	20	GND
21	PB7	22	GND	21	PA9	22	PB2
23	PC13	24	VIN	23	PA8	24	PB1
25	PC14	26	-	25	PB10	26	PB15
27	PC15	28	PA0	27	PB4	28	PB14
29	PF0	30	PA1	29	PB5	30	PB13
31	PF1	32	PA4	31	PB3	32	AGND
33	VBAT	34	PB0	33	PA10	34	PC4
35	PC2	36	PC1	35	PA2	36	PF5
37	PC3	38	PC0	37	PA3	38	PF4
39	PD4	40	PD3	39	GND	40	PE8
41	PD5	42	PG2	41	PD13	42	PF10
43	PD6	44	PG3	43	PD12	44	PE7
45	PD7	46	PE2	45	PD11	46	PD14