8.2 ST morpho connector

The ST morpho connector consists of male pin header footprints CN11 and CN12 (not soldered by default). They are used to connect the STM32H7 Nucleo-144 board to an extension board or a prototype/wrapping board placed on top of the STM32H7 Nucleo-144 board. All signals and power pins of the STM32H7 are available on the ST morpho connector. This connector can also be probed by an oscilloscope, logical analyzer, or voltmeter.

Table 22 shows the pin assignments of each STM32H7 on the ST morpho connector.

Table 22. ST morpho connector pin assignment

CN11 odd pins		CN11 even pins		CN12 odd pins		CN12 even pins	
Pin nbr	Pin name	Pin nbr	Pin name	Pin nbr	Pin name	Pin nbr	Pin name
1	PC10	2	PC11	1	PC9	2	PC8
3	PC12	4	PD2	3	PB8	4	PC6
5	3V3_VDD	6	5V_EXT	5	PB9	6	PC5
7	BOOT0[1]	8	GND	7	VREFP	8	5V_USB_STLK[2]
9	PF6	10	NC	9	GND	10	PD8
11	PF7	12	IOREF	11	PA5	12	PA12
13	PA13[3]	14	NRST	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	NC	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

Table 22. ST morpho connector pin assignment (continued)

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

1. The 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. 5V_USB_STLK is the 5 V power coming from the ST-LINKV3 USB connector that rises before and it rises before the +5 V rising on the board.

3. PA13 and PA14 are shared with SWD signals connected to STLINK-V3. It is not recommended to use them as I/O pins.