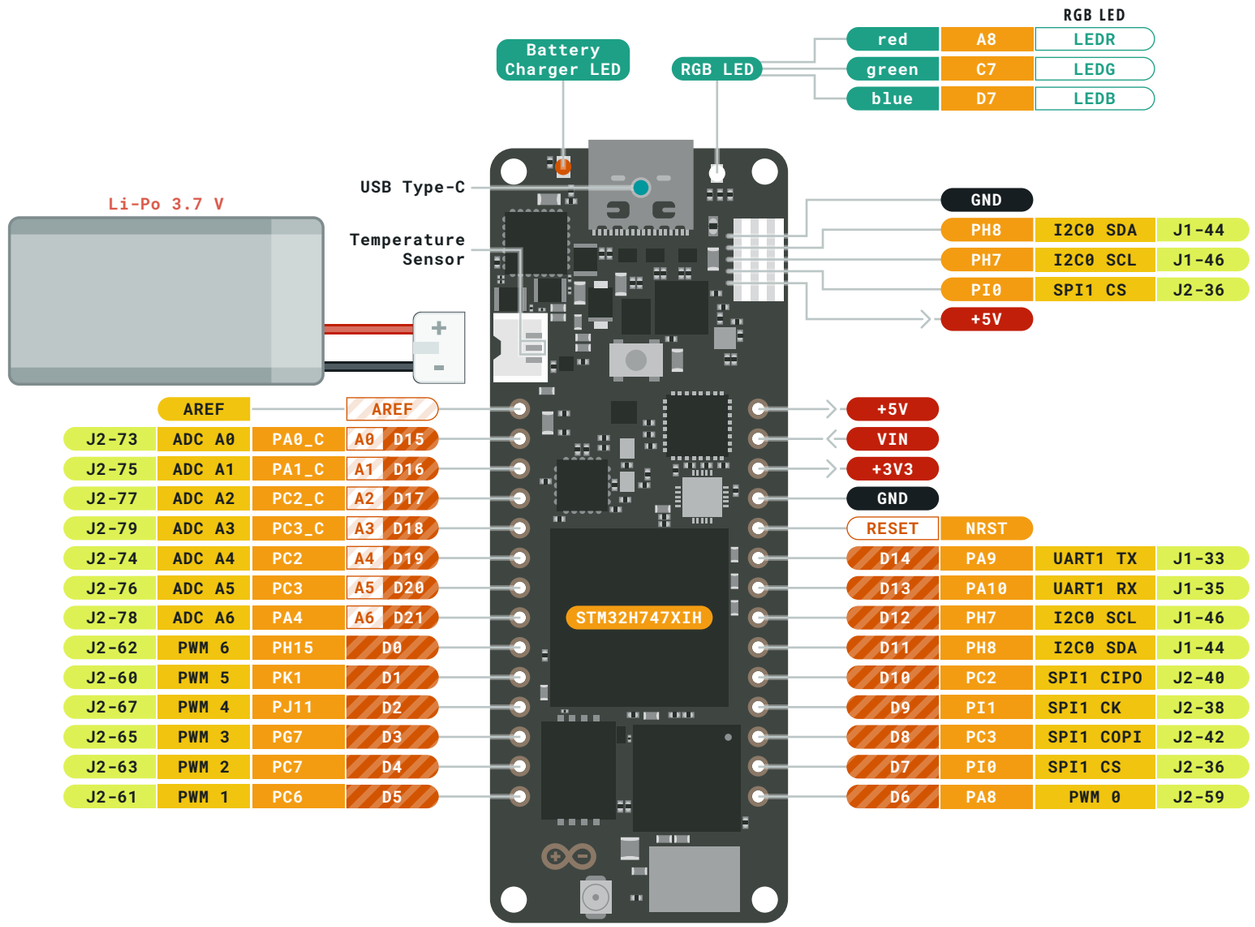

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ARDUINO.CC

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ARDUINO PORTENTA H7

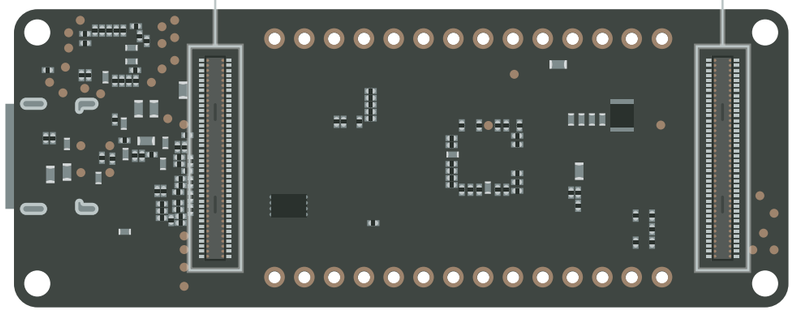
STORE.ARDUINO.CC/PORTENTA-H7

J1

ETH A+	1		2		
ETH A-	3		4		
ETH B+	5		6		
ETH B-	7		8		
	9		10	DSI D1+	
	11		12	DSI D1-	
	13		14	DSI D0+	
	15		16	DSI D0-	
ETH L1	17		18	DSI CK+	
ETH L2	19		20	DSI CK-	
VIN	21		22	GND	
USB1 VBUS	23		24		
USB1 D+	25		26	USB0 D+	
USB1 D-	27		28	USB0 D-	
USB1 ID	29		30		
GND	31		32	VIN	
UART1 TX	33		34	UART0 TX	
UART1 RX	35		36	UART0 RX	
UART1 RTS	37		38	UART0 RTS	
UART1 CTS	39		40	UART0 CTS	
VIN	41		42	GND	
I2C1 SDA	43		44	I2C0 SDA	
I2C1 SCL	45		46	I2C0 SCL	
GND	47		48	VIN	
CAN1 TX	49		50		
CAN1 RX	51		52		
VSYS	53		54	GND	
SDC CLK	55		56	I2S MCK	
SDC CMD	57		58	I2S WS	
SDC D0	59		60	I2S DI	
SDC D1	61		62	I2S DO	
SDC D2	63		64	VSYS	
SDC D3	65		66	DMIC CK	
	67		68	DMIC D0	
	69		70		
	71		72	V-SDCARD	
RESET	73		74		
SWDIO	75		76		
SWCK	77		78		
SWO	79		80		

BOTTOM

USB



J2

ADC A7	80		79	ADC A3	
ADC A6	78		77	ADC A2	
ADC A5	76		75	ADC A1	
ADC A4	74		73	ADC A0	
ADC VREF-	72		71	ADC VREF+	
GND	70		69	VCC/+3V3	
PWM 10	68		67	PWM 5	
PWM 9	66		65	PWM 4	
PWM 8	64		63	PWM 3	
PWM 7	62		61	PWM 2	
PWM 6	60		59	PWM 1	
GPIO 6	58		57	GND	
GPIO 5	56		55		
GPIO 4	54		53	SAI D0	
GPIO 3	52		51	SAI FS	
GPIO 2	50		49	SAI CK	
GPIO 1	48		47	I2C2 SCL	
GPIO 0	46		45	I2C2 SDA	
GND	44		43	VCC/+3V3	
SPI1 COPI	42		41		
SPI1 CIPO	40		39		
SPI1 CK	38		37		
SPI1 CS	36		35		
VCC	34		33	GND	
	32		31		
	30		29		
UART2 RX	28		27	UART3 RX	
UART2 TX	26		25	UART3 TX	
GND	24		23	VCC/+3V3	
CAM HS	22		21		
CAM CLK	20		19		
CAM VS	18		17		
CAM D0	16		15		
CAM D1	14		13		
CAM D2	12		11		
CAM D3	10		9		
CAM D4	8		7	COINCELL	
CAM D5	6		5	POWER_ON_REQ	
CAM D6	4		3	BOOT_SOURCE	
CAM D7	2		1	FORCE_BOOTLOADER	

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ARDUINO

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USB

J1_odd - Analog/Timer

ARDUINO PORTENTA H7

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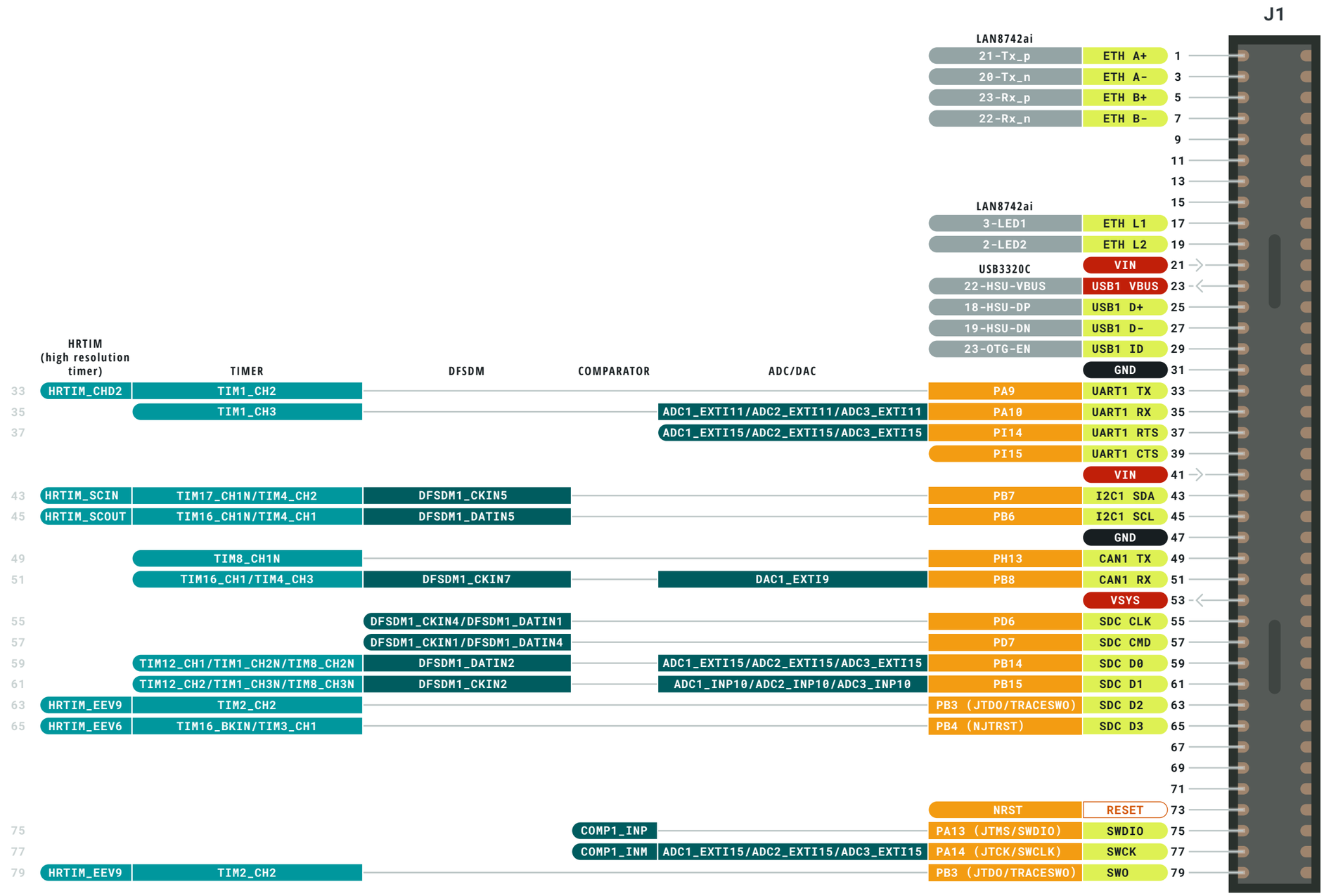

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ARDUINO

BOTTOM

USB

J1_odd - Communication

ARDUINO PORTENTA H7

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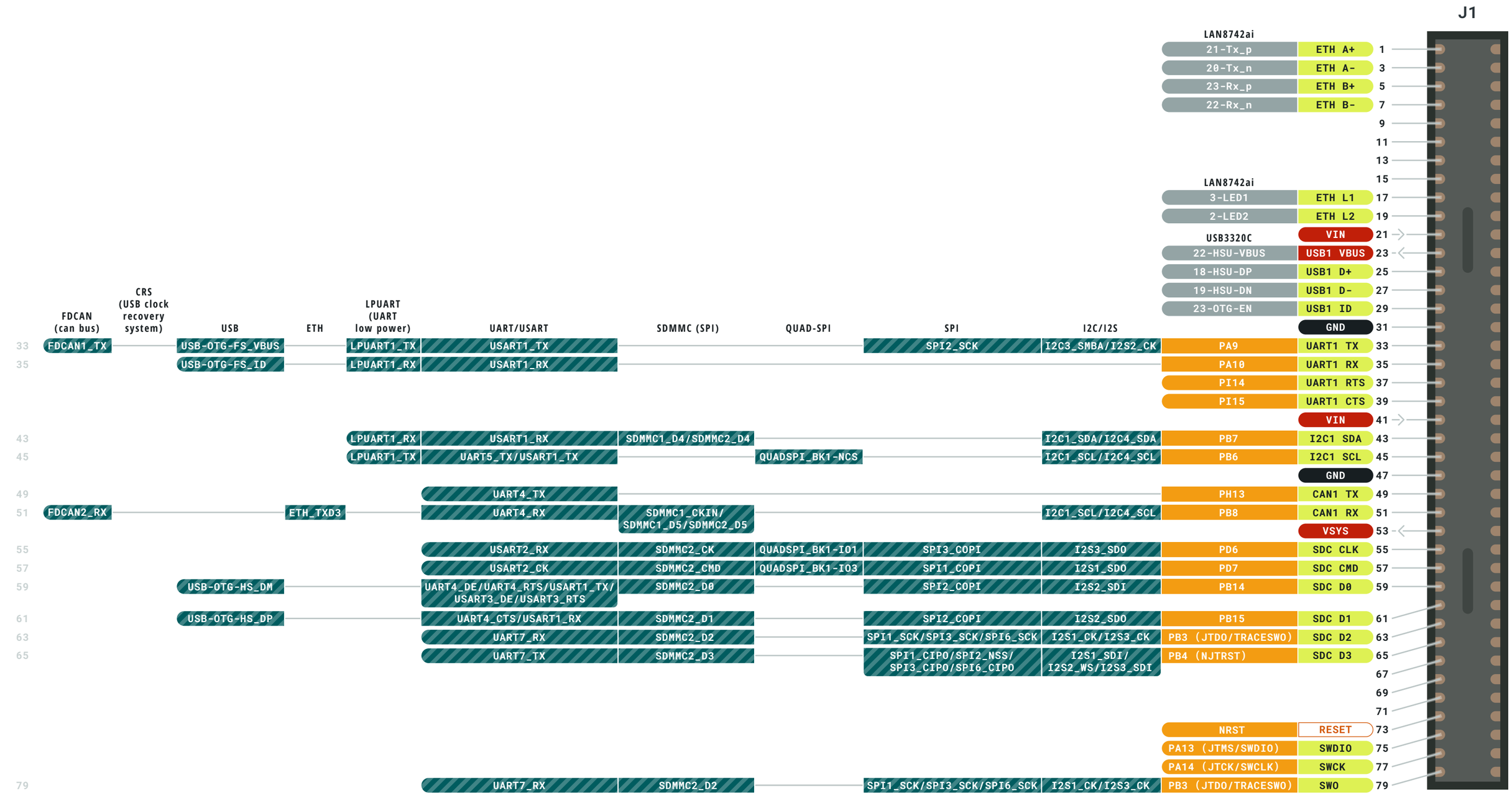

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USB

J1_odd - Extra/Debug

ARDUINO PORTENTA H7

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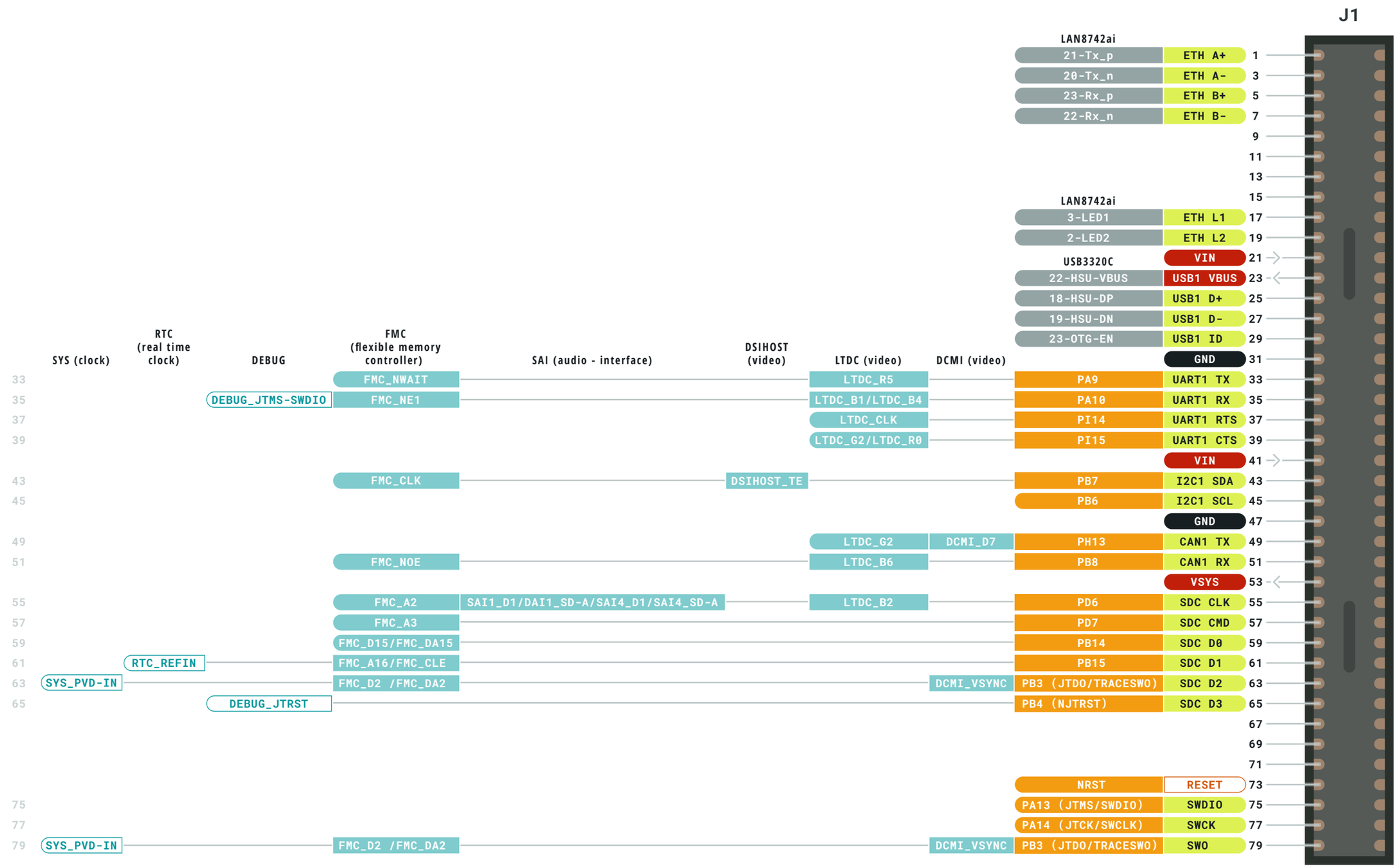

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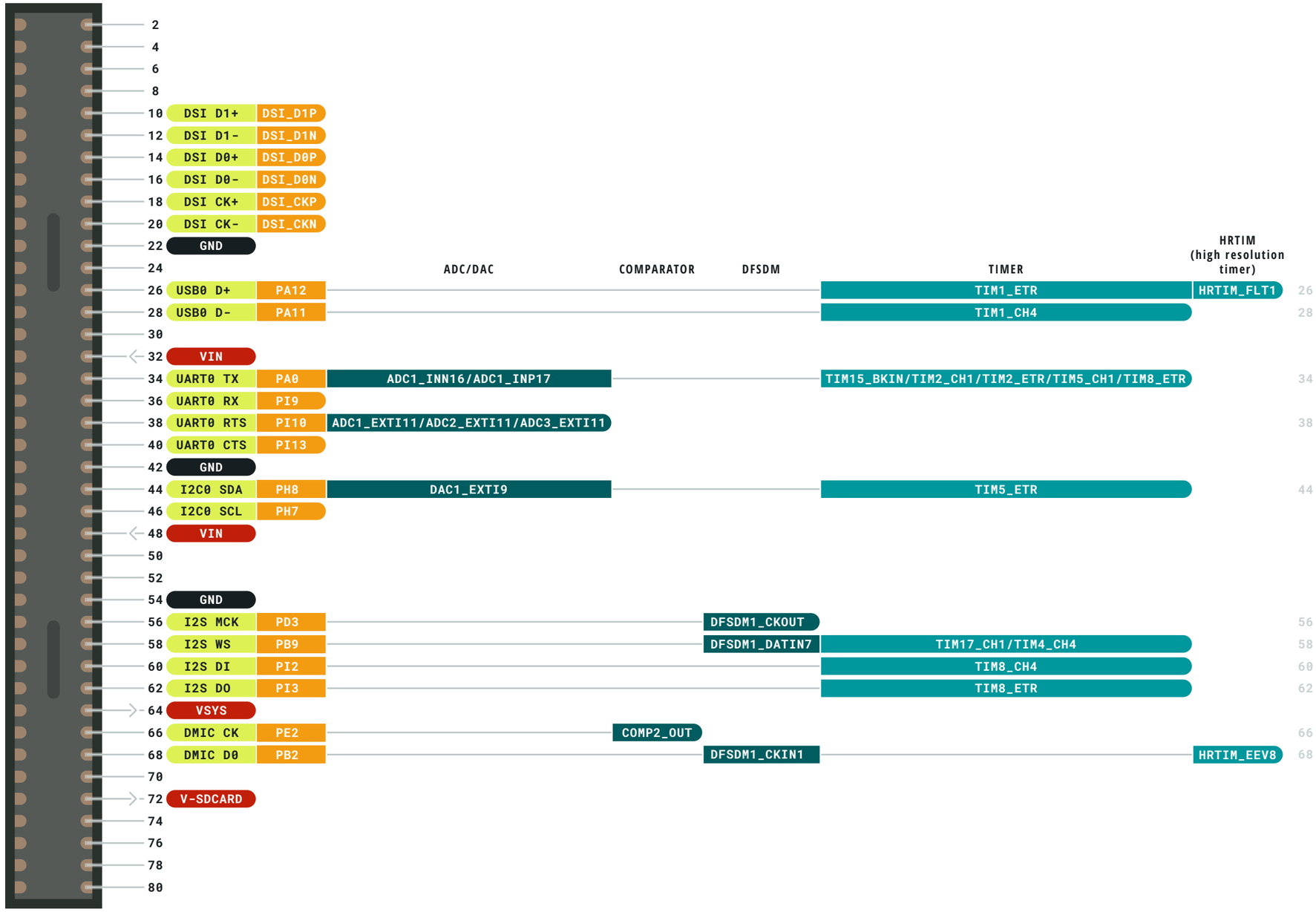
USB

J1_even - Analog/Timer

ARDUINO PORTENTA H7

STORE.ARDUINO.CC/PORTENTA-H7

J1



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ARDUINO

BOTTOM

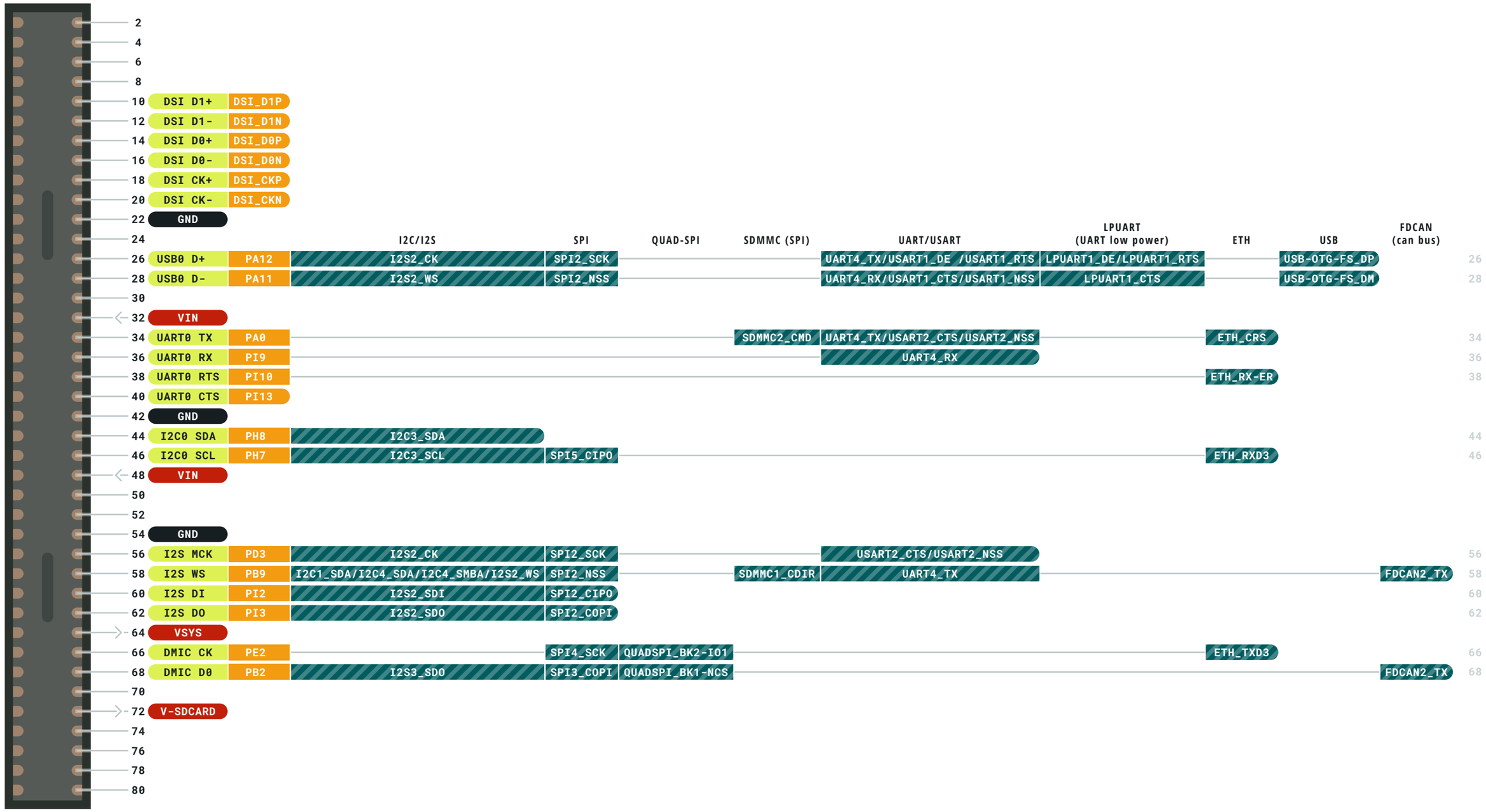
USB

J1_even - Communication

ARDUINO PORTENTA H7

STORE.ARDUINO.CC/PORTENTA-H7

J1



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J1_even - Extra/Debug

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USB

ARDUINO PORTENTA H7

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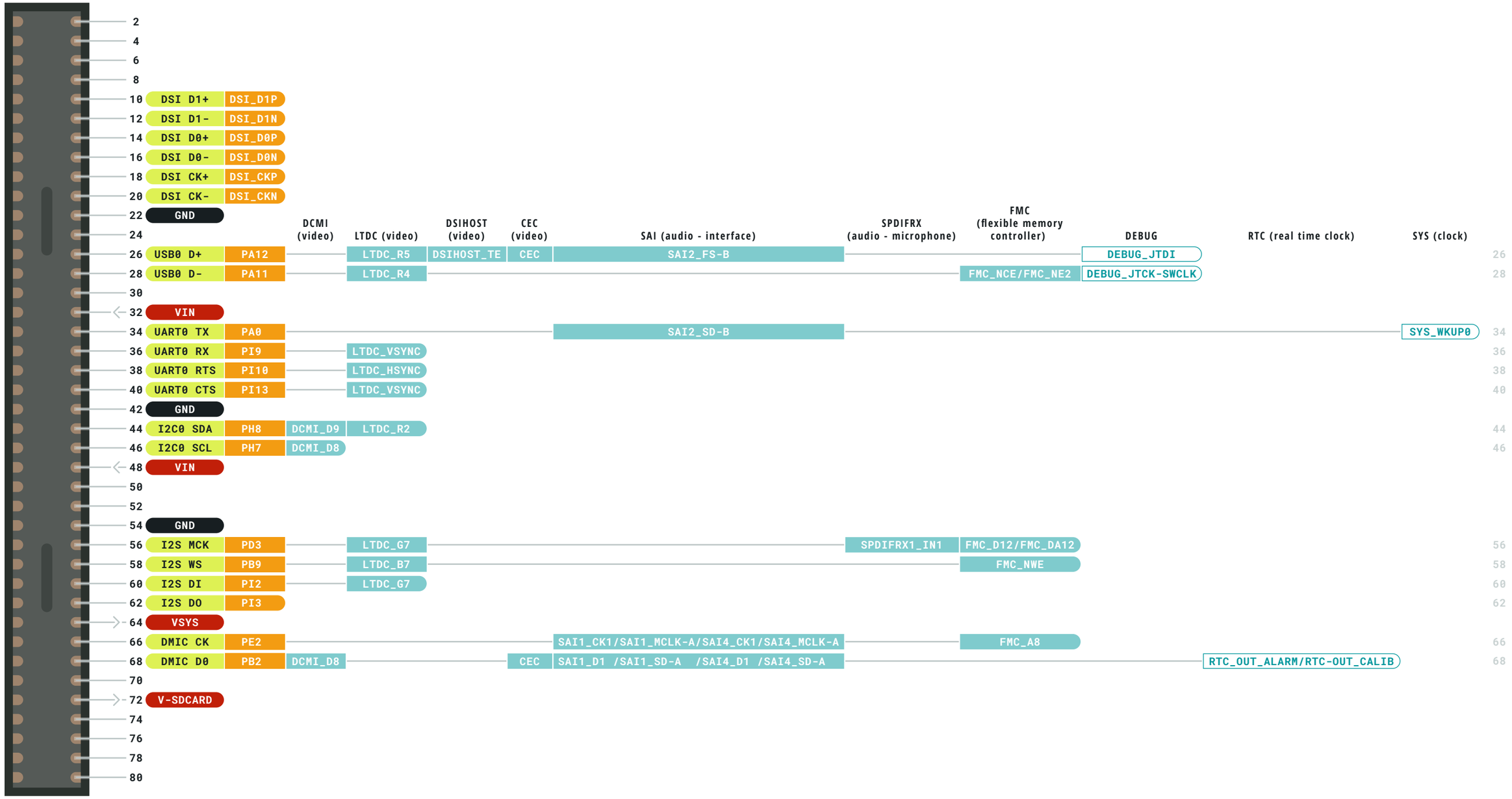

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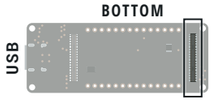

J2_even - Analog/Timer

ARDUINO PORTENTA H7

STORE.ARDUINO.CC/PORTENTA-H7

J2

	LPTIM (low power timer)	HRTIM (high resolution timer)	TIMER	DFSDM	COMPARATOR	ADC/DAC			
80		HRTIM_CHB2	TIM13_CH1/TIM1_BKIN/TIM1_BKIN-COMP1/TIM1_BKIN-COMP2/ TIM3_CH1/TIM8_BKIN/TIM8_BKIN-COMP1/TIM8_BKIN-COMP2			ADC1_INN3/ADC1_INP7/ADC2_INN3/ADC2_INP7	PA6	ADC A7	80
78			TIM5_ETR			ADC1_INN18/ADC1_INP19/ADC2_INN18/ADC2_INP19/DAC1_OUT2	PA4	ADC A6	78
76		HRTIM_CHA2		DFSDM1_DATIN1		ADC1_INP4/ADC2_INP4	PC3	ADC A5	76
74		HRTIM_CHA1		DFSDM1_CKIN1/DFSDM1_CKOUT		ADC1_INN12/ADC1_INP13/ADC2_INN12/ADC2_INP13	PC2	ADC A4	74
								ADC VREF-	72
								GND	70
68			TIM12_CH1				PH6	PWM 10	68
66			TIM1_CH2N/TIM8_CH2			ADC1_EXTI11/ADC2_EXTI11/ADC3_EXTI11	PJ10	PWM 9	66
64			TIM8_CH2N				PJ7	PWM 8	64
62			TIM8_CH3N				PH15	PWM 7	62
60			TIM1_CH1/TIM8_CH3N				PK1	PWM 6	60
58						ADC1_EXTI11/ADC2_EXTI11/ADC3_EXTI11	PG10	GPIO 6	58
56		HRTIM_EEV5	TIM8_BKIN2/TIM8_BKIN2-COMP1/TIM8_BKIN2-COMP2				PG3	GPIO 5	56
54			TIM15_BKIN		COMP2_INM		PE3	GPIO 4	54
							PD5	GPIO 3	52
							PD4	GPIO 2	50
							PC15	GPIO 1	48
							PC13	GPIO 0	46
								GND	44
42		HRTIM_CHA2		DFSDM1_DATIN1		ADC1_INP4/ADC2_INP4	PC3	SPI1 COPI	42
40		HRTIM_CHA1		DFSDM1_CKIN1/DFSDM1_CKOUT		ADC1_INN12/ADC1_INP13/ADC2_INN12/ADC2_INP13	PC2	SPI1 CIPO	40
38			TIM8_CH4				PI1	SPI1 CK	38
36			TIM5_CH4				PI0	SPI1 CS	36
								VCC/+3V3	34
									32
									30
							PG9	UART2 RX	28
26	LPTIM1_ETR					ADC1_EXTI15/ADC2_EXTI15/ADC3_EXTI15	PG14	UART2 TX	26
24								GND	24
22			TIM5_ETR			ADC1_INN18/ADC1_INP19/ADC2_INN18/ADC2_INP19/DAC1_OUT2	PA4	CAM HS	22
20		HRTIM_CHB2	TIM13_CH1/TIM1_BKIN/TIM1_BKIN-COMP1/TIM1_BKIN-COMP2/ TIM3_CH1/TIM8_BKIN/TIM8_BKIN-COMP1/TIM8_BKIN-COMP2			ADC1_INN3/ADC1_INP7/ADC2_INN3/ADC2_INP7	PA6	CAM CLK	20
18			TIM8_CH1				PI5	CAM VS	18
16			TIM12_CH2				PH9	CAM D0	16
14			TIM5_CH1			ADC1_EXTI11/ADC2_EXTI11/ADC3_EXTI11	PH10	CAM D1	14
12			TIM5_CH2				PH11	CAM D2	12
10			TIM5_CH3				PH12	CAM D3	10
8			TIM8_CH2N			ADC1_EXTI15/ADC2_EXTI15/ADC3_EXTI15	PH14	CAM D4	8
6			TIM8_BKIN/TIM8_BKIN-COMP1/TIM8_BKIN-COMP2				PI4	CAM D5	6
4			TIM8_CH2				PI6	CAM D6	4
2			TIM8_CH3				PI7	CAM D7	2

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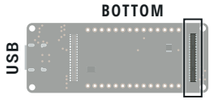

J2_even - Communication

ARDUINO PORTENTA H7

STORE.ARDUINO.CC/PORTENTA-H7

J2

	USB	MDIOS (ETHERNET IEEE RFC 802.3)	ETH	SWPMI	UART/USART	QUAD-SPI	SPI	I2C/I2S			
80							SPI1_CIPO/SPI6_CIPO	I2S1_SDI	PA6	ADC A7	80
78	USB-OTG-HS_SOF	MDIOS_MDC			USART2_CK		SPI1_NSS/SPI3_NSS/SPI6_NSS	I2S1_WS/I2S3_WS	PA4	ADC A6	78
76	USB-OTG-HS_ULPI-NXT		ETH_TX-CLK	SWPMI1_TX			SPI2_COPI	I2S2_SDO	PC3	ADC A5	76
74	USB-OTG-HS_ULPI-DIR		ETH_TXD2	SWPMI1_IO			SPI2_CIPO	I2S2_SDI	PC2	ADC A4	74
										ADC VREF-	72
										GND	70
68			ETH_RXD2				SPI5_SCK	I2C2_SMBA	PH6	PWM 10	68
66							SPI5_COPI		PJ10	PWM 9	66
									PJ7	PWM 8	64
									PH15	PWM 7	62
60							SPI5_NSS		PK1	PWM 6	60
58						QUADSPI_BK2-IO1	SPI1_NSS	I2S1_WS	PG10	GPIO 6	58
									PG3	GPIO 5	56
54						QUADSPI_BK2-IO3			PE3	GPIO 4	54
52					USART2_TX	QUADSPI_BK1-IO0			PD5	GPIO 3	52
50					USART2_DE/USART2_RTS				PD4	GPIO 2	50
									PC15	GPIO 1	48
									PC13	GPIO 0	46
										GND	44
42	USB-OTG-HS_ULPI-NXT		ETH_TX-CLK	SWPMI1_TX			SPI2_COPI	I2S2_SDO	PC3	SPI1 COPI	42
40	USB-OTG-HS_ULPI-DIR		ETH_TXD2	SWPMI1_IO			SPI2_CIPO	I2S2_SDI	PC2	SPI1 CIPO	40
38							SPI2_SCK	I2S2_CK	PI1	SPI1 CK	38
36							SPI2_NSS	I2S2_WS	PI0	SPI1 CS	36
										VCC/+3V3	34
											32
											30
28					USART6_RX	QUADSPI_BK2-IO0	SPI1_CIPO	I2S1_SDI	PG9	UART2 RX	28
26			ETH_TXD1		USART6_TX		SPI6_COPI		PG14	UART2 TX	26
										GND	24
22	USB-OTG-HS_SOF	MDIOS_MDC			USART2_CK		SPI1_NSS/SPI3_NSS/SPI6_NSS	I2S1_WS/I2S3_WS	PA4	CAM HS	22
20							SPI1_CIPO/SPI6_CIPO	I2S1_SDI	PA6	CAM CLK	20
									PI5	CAM VS	18
16								I2C3_SMBA	PH9	CAM D0	16
14								I2C4_SMBA	PH10	CAM D1	14
12								I2C4_SCL	PH11	CAM D2	12
10								I2C4_SDA	PH12	CAM D3	10
8					UART4_RX				PH14	CAM D4	8
									PI4	CAM D5	6
									PI6	CAM D6	4
									PI7	CAM D7	2

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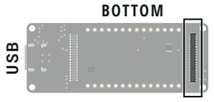

J2_even - Extra/Debug

ARDUINO PORTENTA H7

STORE.ARDUINO.CC/PORTENTA-H7

J2

	SYS (clock)	RCC (clock)	RTC (real time clock)	DEBUG	FMC (flexible memory controller)	SPDIFRX (audio - microphone)	SAI (audio - interface)	DSIHOST (video)	LTDC (video)	DCMI (video)			
80		RCC_MCO-1			FMC_SDCKE0				LTDC_G2		PA6	ADC A7	80
78									LTDC_VSYNC	DCMI_PIXCLK	PA4	ADC A6	78
76	SYS_TRGIO				FMC_D1/FMC_DA1					DCMI_D1	PC3	ADC A5	76
74					FMC_D0/FMC_DA0					DCMI_D0	PC2	ADC A4	74
												ADC VREF-	72
												GND	70
68										DCMI_D13	PH6	PWM 10	68
66									LTDC_G3		PJ10	PWM 9	66
64									LTDC_G0		PJ7	PWM 8	64
62									LTDC_G4		PH15	PWM 7	62
60									LTDC_G6		PK1	PWM 6	60
58					FMC_D28		SAI2_SD-B		LTDC_B2/LTDC_G3		PG10	GPIO 6	58
56					FMC_D23	SPDIFRX1_IN1					PG3	GPIO 5	56
54					FMC_A9		SAI1_SD-B/SAI4_SD-B				PE3	GPIO 4	54
52					FMC_A1						PD5	GPIO 3	52
50					FMC_A0		SAI3_FS-A				PD4	GPIO 2	50
											PC15	GPIO 1	48
46			RTC-OUT_ALARM/RTC-OUT_CALIB/ RTC_TAMP1/RTC_TS	DEBUG_TRACED2	FMC_D6/FMC_DA6					DCMI_D11	PC13	GPIO 0	46
												GND	44
42	SYS_TRGIO				FMC_D1/FMC_DA1					DCMI_D1	PC3	SPI1 COPI	42
40					FMC_D0/FMC_DA0					DCMI_D0	PC2	SPI1 CIPO	40
38									LTDC_G7		PI1	SPI1 CK	38
36	SYS_WKUP4								LTDC_G5		PI0	SPI1 CS	36
												VCC/+3V3	34
													32
													30
28					FMC_NBL3		SAI2_FS-B				PG9	UART2 RX	28
26					FMC_D31				LTDC_B0	DCMI_D9	PG14	UART2 TX	26
												GND	24
22									LTDC_VSYNC	DCMI_PIXCLK	PA4	CAM HS	22
20		RCC_MCO-1			FMC_SDCKE0				LTDC_G2		PA6	CAM CLK	20
18							SAI2_SCK-A		LTDC_B5		PI5	CAM VS	18
16									LTDC_R3	DCMI_D10	PH9	CAM D0	16
14									LTDC_R4	DCMI_D5	PH10	CAM D1	14
12									LTDC_R5	DCMI_VSYNC	PH11	CAM D2	12
10									LTDC_R6	DCMI_D6	PH12	CAM D3	10
8	SYS_WKUP3								LTDC_G3		PH14	CAM D4	8
6							SAI2_MCLK-A		LTDC_B4		PI4	CAM D5	6
4							SAI2_SD-A		LTDC_B6		PI6	CAM D6	4
2							SAI2_FS-A	DSIHOST_TE	LTDC_B7		PI7	CAM D7	2

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NOTE: CIPO/COPI have previously been referred to as MISO/MOSI

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ARDUINO

BOTTOM

USB

J2_odd - Analog/Timer

ARDUINO PORTENTA H7

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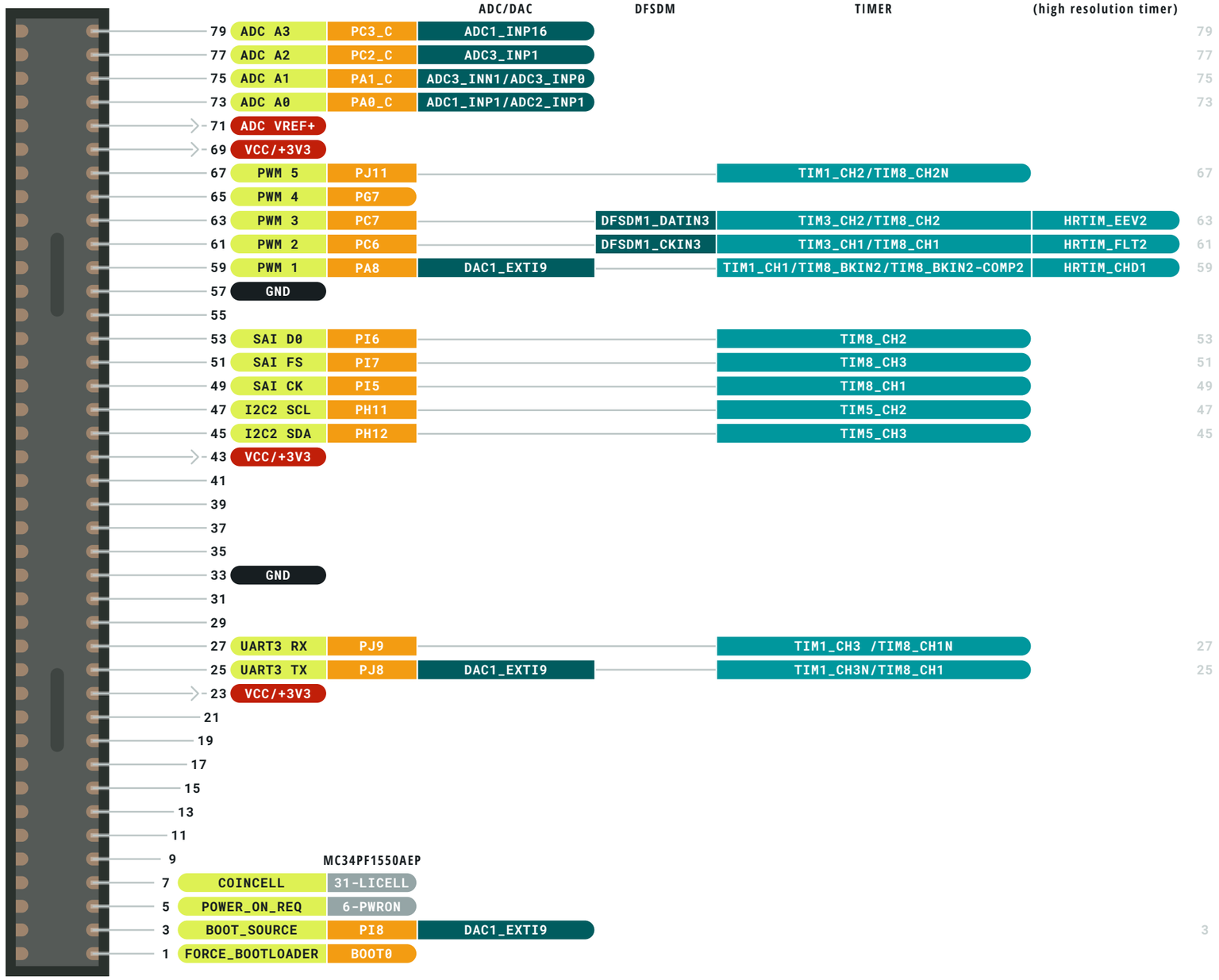
J2



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ARDUINO

BOTTOM

USB

J2_odd - Communication

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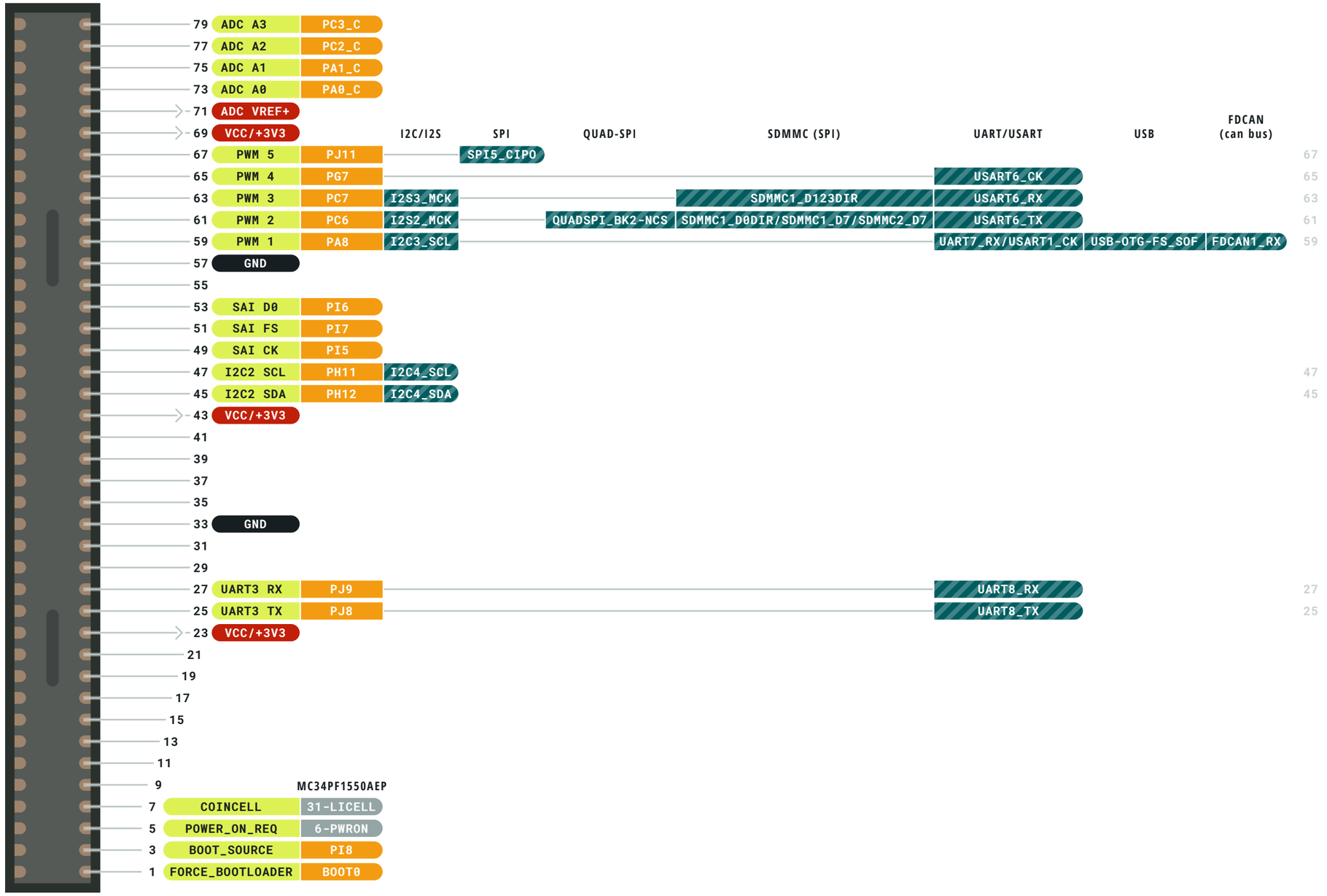
J2



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PORTENTA H7
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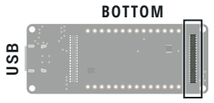
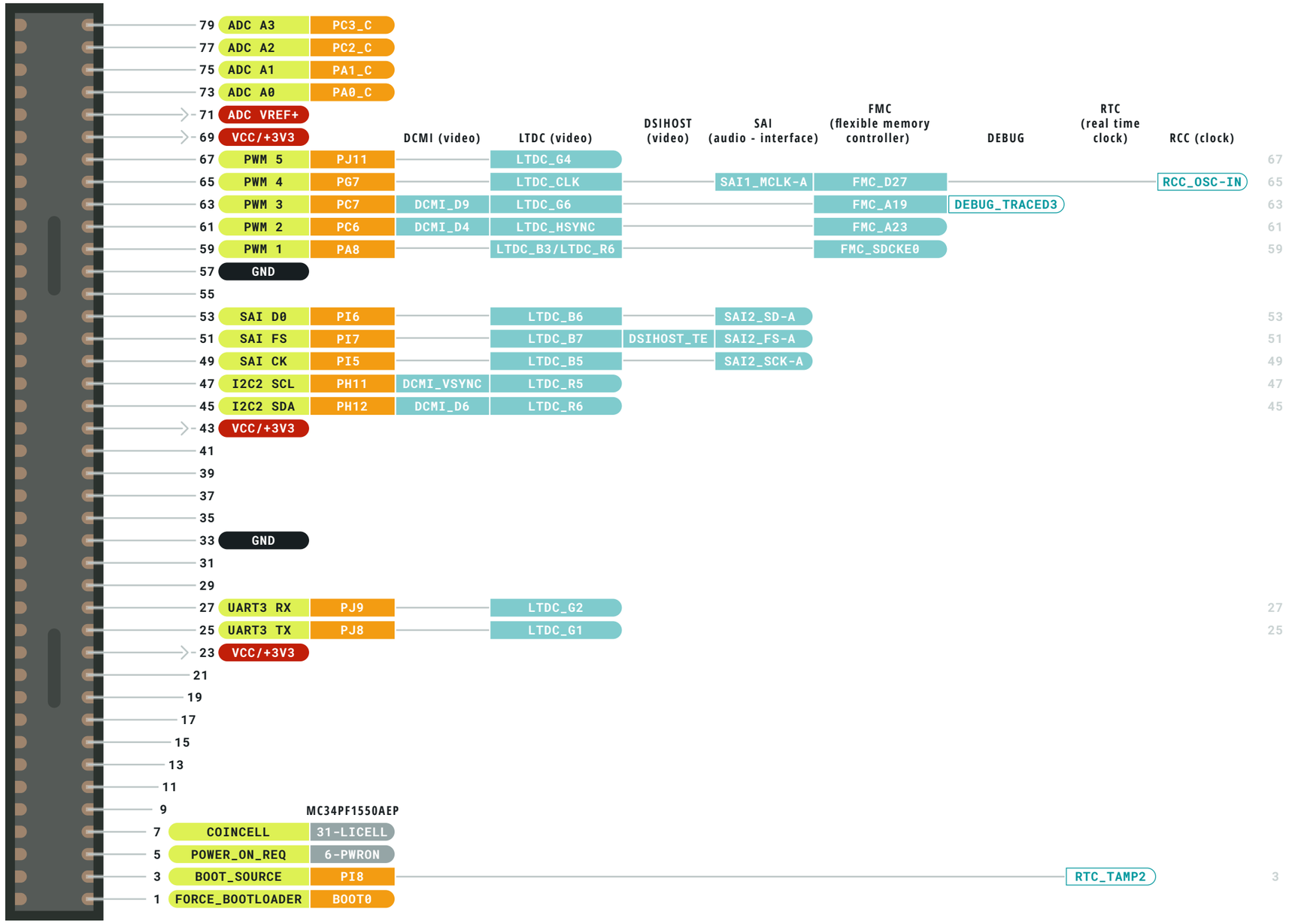


J2_odd - Extra/Debug



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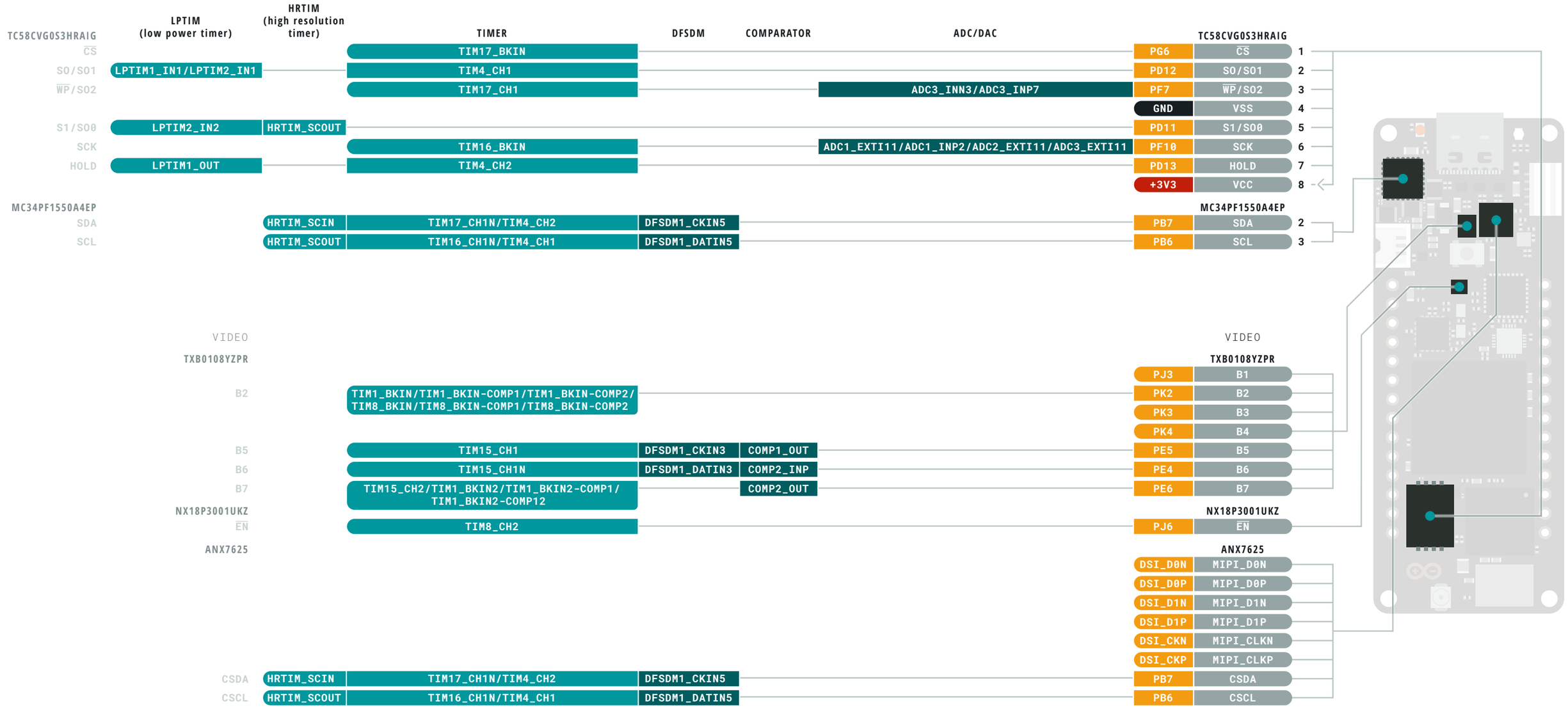

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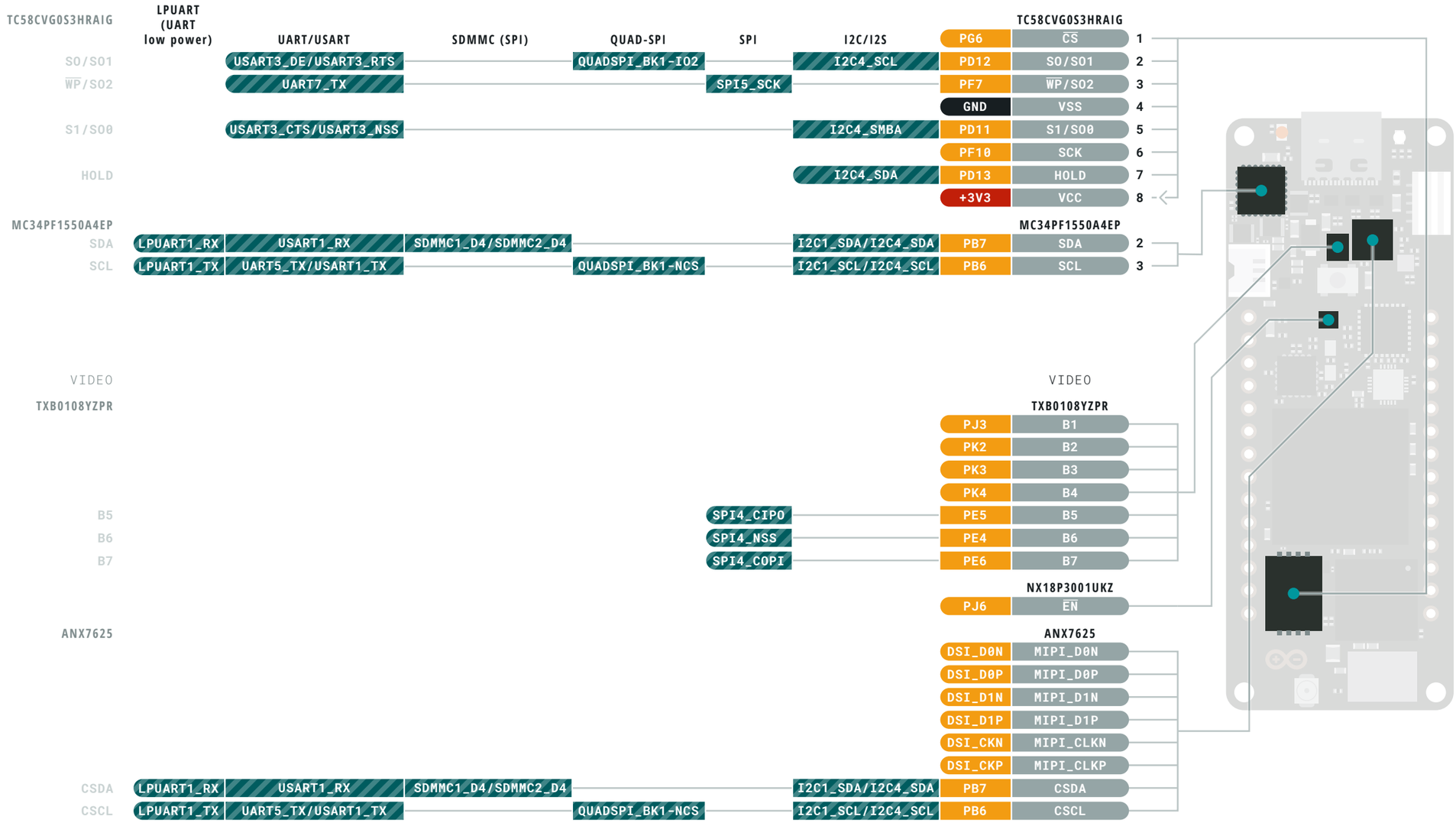

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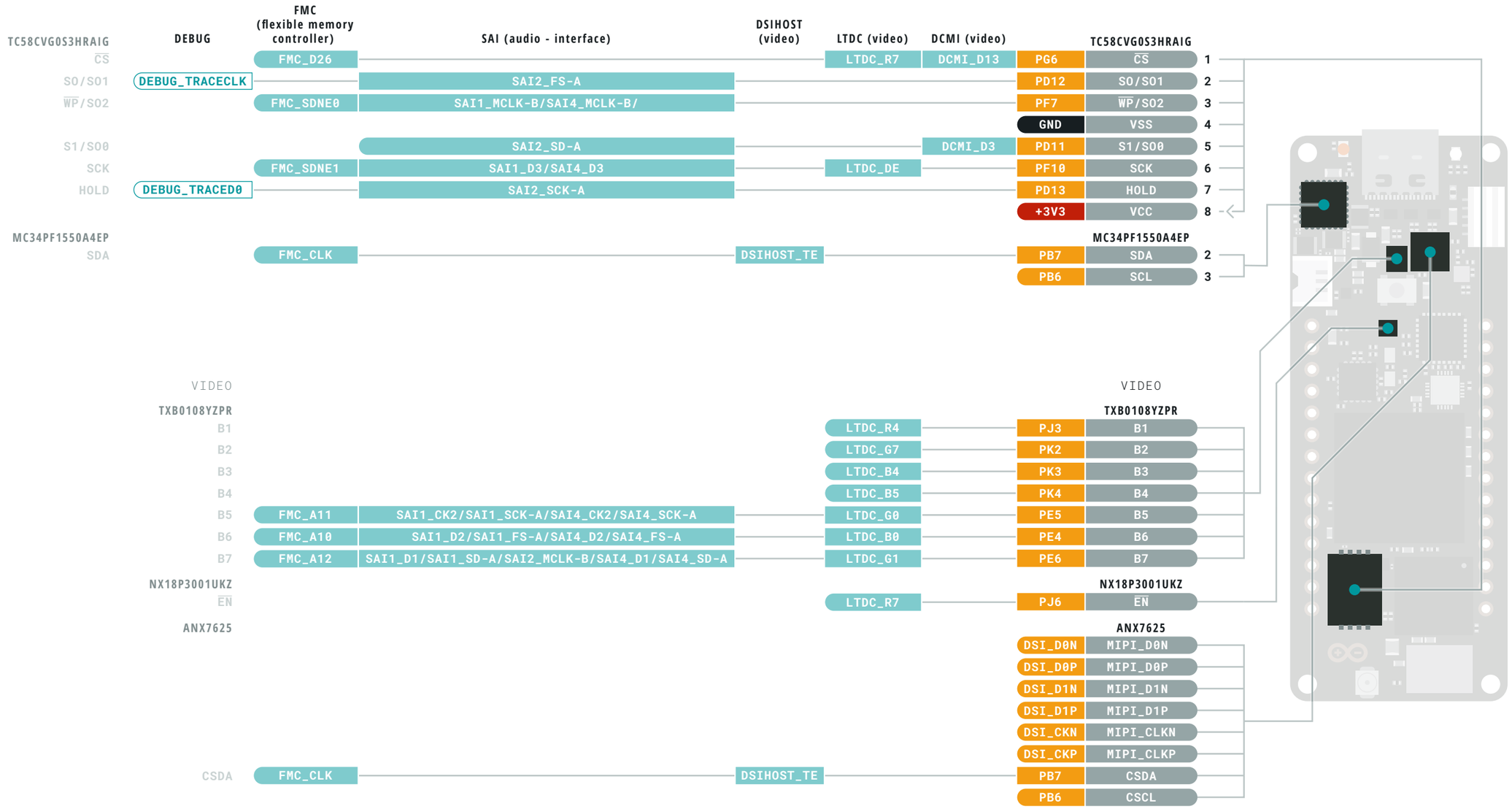

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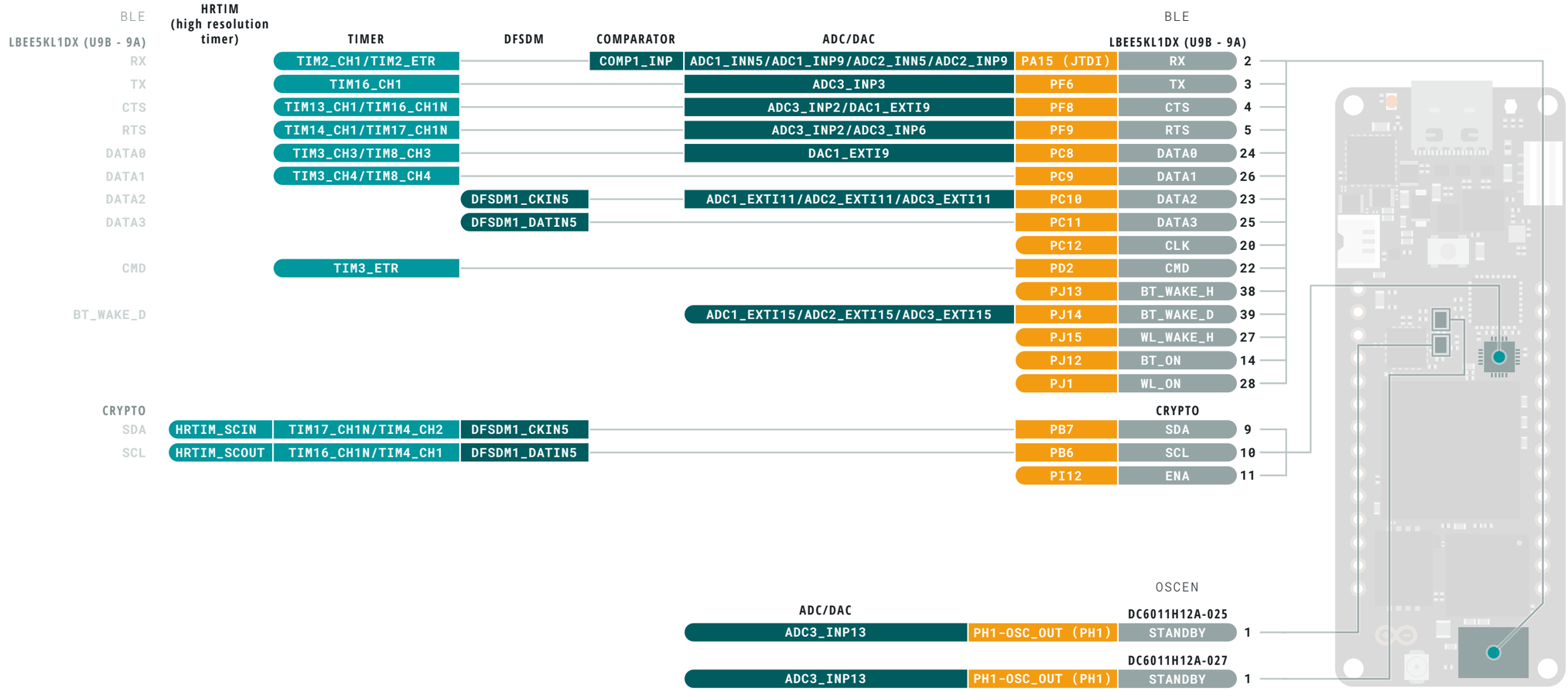

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ARDUINO PORTENTA H7

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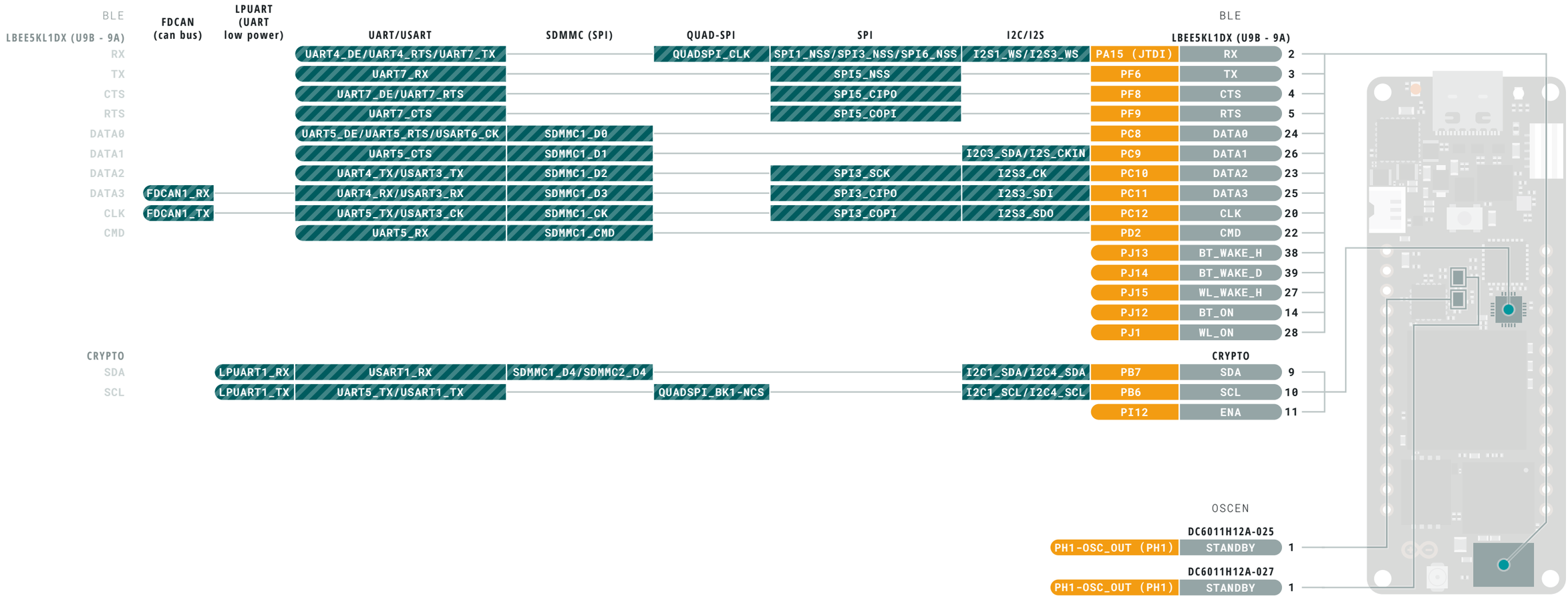

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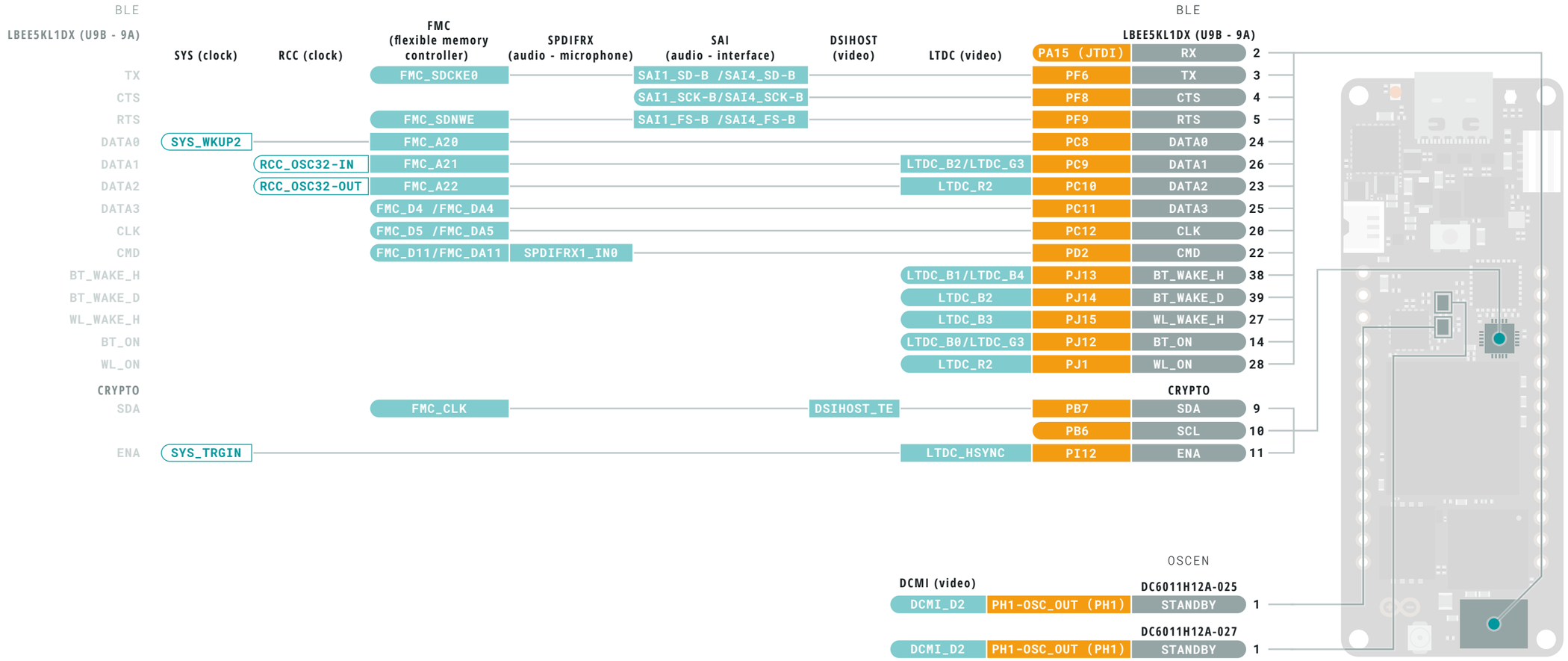

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ARDUINO PORTENTA H7

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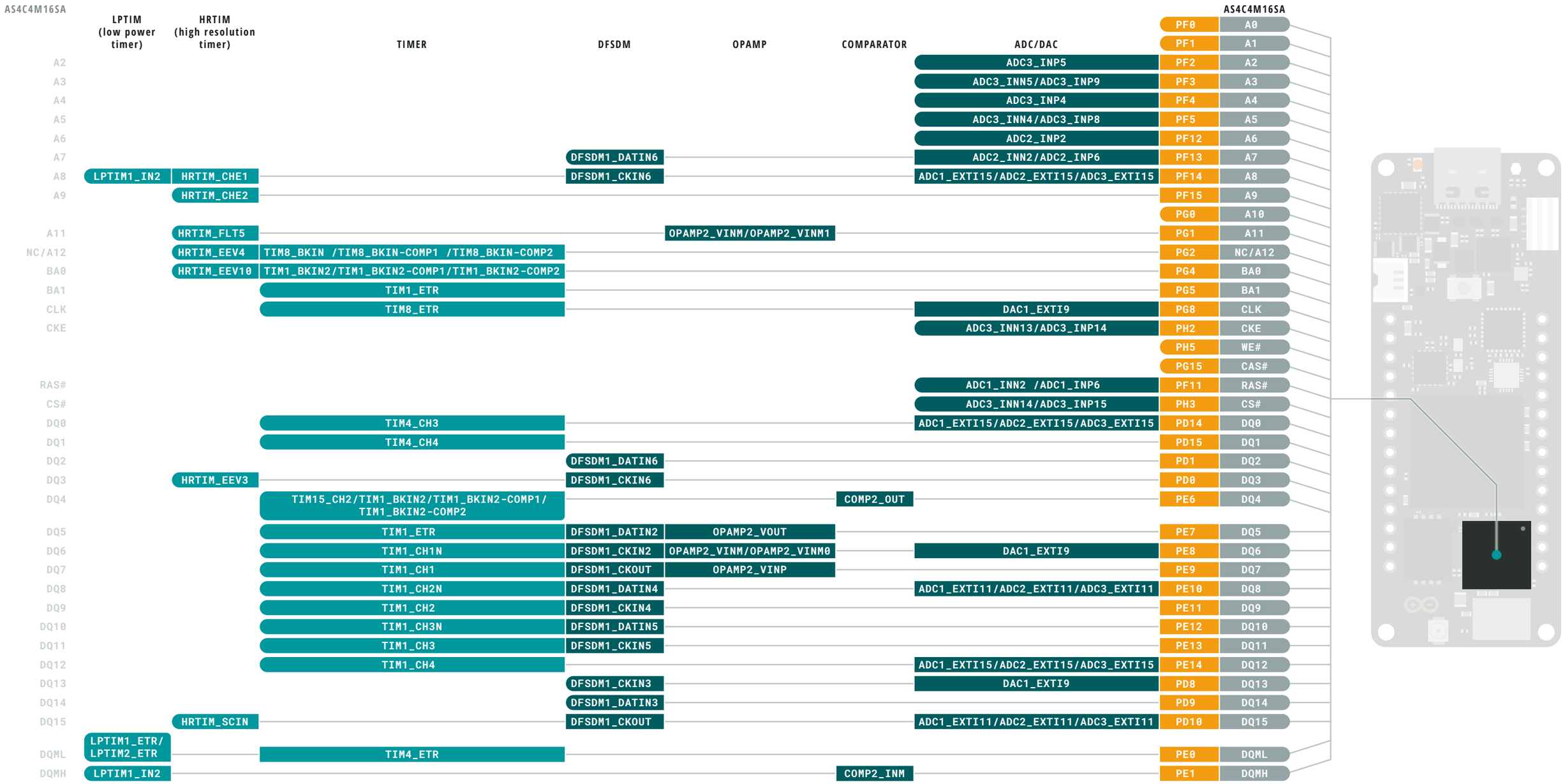

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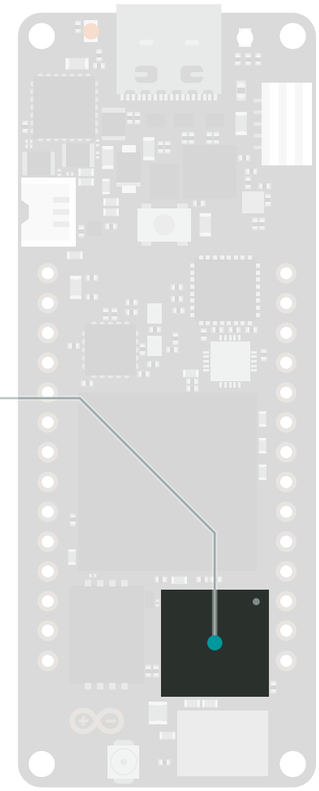
AS4C4M16SA	FDCAN (can bus)	ETH	UART/USART	QUAD-SPI	SPI	I2C/I2S		AS4C4M16SA
A0				QUADSPI_BK1-IO2		I2C2_SDA	PF0	A0
A1				QUADSPI_BK1-IO0		I2C2_SCL	PF1	A1
A2				QUADSPI_CLK		I2C2_SMBA	PF2	A2
							PF3	A3
							PF4	A4
							PF5	A5
							PF12	A6
A7						I2C4_SMBA	PF13	A7
A8				QUADSPI_BK1-NCS		I2C4_SCL	PF14	A8
A9						I2C4_SDA	PF15	A9
							PG0	A10
							PG1	A11
							PG2	NC/A12
							PG4	BA0
BA1				QUADSPI_BK2-IO3			PG5	BA1
CLK		ETH_PPS-OUT	USART6_DE /USART6_RTS		SPI6_NSS		PG8	CLK
CKE		ETH_CRS					PH2	CKE
WE#					SPI5_NSS	I2C2_SDA	PH5	WE#
CAS#			USART6_CTS/USART6_NSS				PG15	CAS#
RAS#					SPI5_COPI		PF11	RAS#
CS#	FDCAN1_TX	ETH_COL					PH3	CS#
DQ0			UART8_CTS				PD14	DQ0
DQ1			UART8_DE/UART8_RTS				PD15	DQ1
DQ2			UART4_TX				PD1	DQ2
DQ3			UART4_RX				PD0	DQ3
DQ4					SPI4_COPI		PE6	DQ4
DQ5			UART7_RX				PE7	DQ5
DQ6			UART7_TX				PE8	DQ6
DQ7			UART7_DE/UART7_RTS				PE9	DQ7
DQ8			UART7_CTS				PE10	DQ8
DQ9					SPI4_NSS		PE11	DQ9
DQ10					SPI4_SCK		PE12	DQ10
DQ11					SPI4_CIPO		PE13	DQ11
DQ12					SPI4_COPI		PE14	DQ12
DQ13			USART3_TX				PD8	DQ13
DQ14			USART3_RX				PD9	DQ14
DQ15			USART3_CK				PD10	DQ15
DQML			UART8_RX				PE0	DQML
DQMH			UART8_TX	QUADSPI_BK2-IO0			PE1	DQMH



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ARDUINO PORTENTA H7

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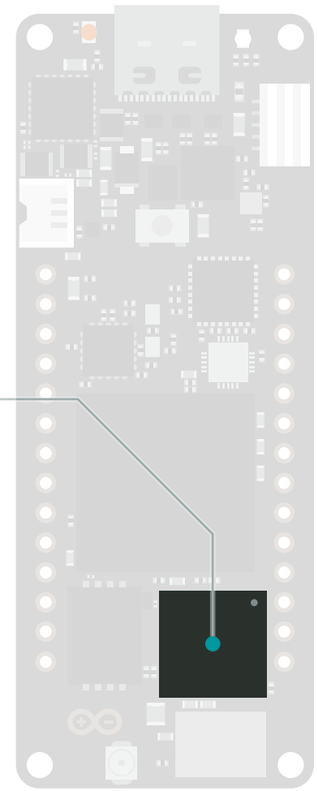
AS4C4M16SA	RCC (clock)	DEBUG	FMC (flexible memory controller)	SPDIFRX (audio - microphone)	SAI (audio - interface)	LTDC (video)	DCMI (video)	AS4C4M16SA	
A0			FMC_NE4					PF0	A0
A1			FMC_A24					PF1	A1
A2			FMC_A25				DCMI_D11	PF2	A2
A3			FMC_SDNCAS				DCMI_D12	PF3	A3
								PF4	A4
								PF5	A5
A6			FMC_D16					PF12	A6
A7			FMC_D17					PF13	A7
A8			FMC_D18				DCMI_D12	PF14	A8
A9			FMC_D19				DCMI_D13	PF15	A9
A10			FMC_D20	SPDIFRX1_IN2				PG0	A10
A11			FMC_D21				DCMI_D2	PG1	A11
NC/A12			FMC_D22	SPDIFRX1_IN0			DCMI_D3	PG2	NC/A12
BA0		DEBUG_TRACED0	FMC_D24					PG4	BA0
BA1		DEBUG_TRACED1	FMC_D25					PG5	BA1
CLK	RCC_OSC-OUT		FMC_NBL2			LTDC_G7		PG8	CLK
CKE					SAI2_SCK-B	LTDC_R0	DCMI_D3	PH2	CKE
WE#							DCMI_D11	PH5	WE#
CAS#							DCMI_HSYNC	PG15	CAS#
RAS#			FMC_SDCKE1		SAI2_SD-B			PF11	RAS#
CS#					SAI2_MCLK-B	LTDC_R1		PH3	CS#
DQ0		DEBUG_TRACED1			SAI3_MCLK-B		DCMI_D4	PD14	DQ0
DQ1		DEBUG_TRACED2	FMC_SDNRAS		SAI3_MCLK-A		DCMI_D6	PD15	DQ1
DQ2			FMC_D10/FMC_DA10		SAI3_SD-A		DCMI_D10	PD1	DQ2
DQ3			FMC_D9 /FMC_DA9		SAI3_SCK-A			PD0	DQ3
DQ4			FMC_A12		SAI1_D1/SAI1_SD-A/SAI2_MCLK-B/SAI4_D1/SAI4_SD-A	LTDC_G1		PE6	DQ4
DQ5			FMC_A13					PE7	DQ5
DQ6			FMC_A14/FMC_BA0					PE8	DQ6
DQ7			FMC_A15/FMC_BA1					PE9	DQ7
DQ8			FMC_NE3					PE10	DQ8
DQ9			FMC_INT		SAI2_SD-B	LTDC_G3		PE11	DQ9
DQ10			FMC_SDCLK		SAI2_SCK-B	LTDC_B4		PE12	DQ10
DQ11			FMC_NCE/FMC_NE2		SAI2_FS-B	LTDC_DE		PE13	DQ11
DQ12			FMC_NE2		SAI2_MCLK-B	LTDC_CLK		PE14	DQ12
DQ13			FMC_A4		SAI3_SCK-B			PD8	DQ13
DQ14			FMC_A5		SAI3_SD-B			PD9	DQ14
DQ15					SAI3_FS-B	LTDC_B3	DCMI_D2	PD10	DQ15
DQML		DEBUG_TRACED3	FMC_A6		SAI2_MCLK-A		DCMI_D7	PE0	DQML
DQMH			FMC_A7					PE1	DQMH



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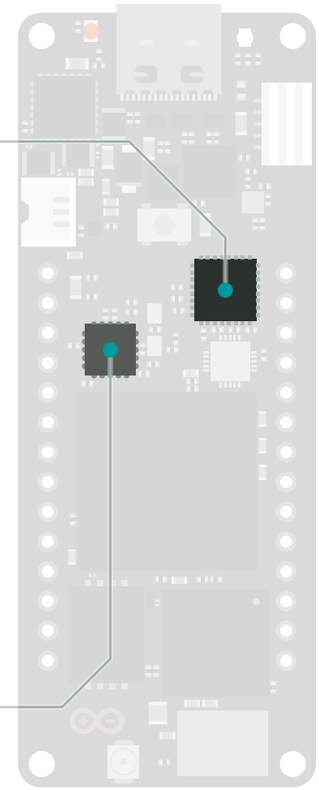
USB3320C	LPTIM (low power timer)	HRTIM (high resolution timer)	TIMER	DFSDM	OPAMP	COMPARATOR	ADC/DAC		USB3320C	
NXT							ADC3_INN15/ADC3_INP16	PH4	NXT	2
								PI11	DIR	31
STP				DFSDM1_CKIN0/ DFSDM1_DATIN4		COMP1_INM	ADC1_INN10/ADC1_INP11/ADC2_INN10/ ADC2_INP11/ADC3_INN10/ADC3_INP11	PC0	STP	29
CLKOUT			TIM2_CH1/TIM2_ETR/TIM8_CH1N				ADC1_INP3/ADC2_INP3	PA5	CLKOUT	1
D7			TIM17_BKIN/TIM3_CH2					PB5	D7	13
D6	LPTIM2_OUT		TIM1_CH1N	DFSDM1_CKIN1				PB13	D6	10
D5			TIM1_BKIN/TIM1_BKIN-COMP1/TIM1_BKIN-COMP2	DFSDM1_DATIN1				PB12	D5	9
D4	LPTIM2_ETR		TIM2_CH4	DFSDM1_CKIN7				PB11	D4	7
D3	LPTIM2_IN1		TIM2_CH3	DFSDM1_DATIN7			ADC1_EXTI11/ADC2_EXTI11/ADC3_EXTI11	PB10	D3	6
D2		HRTIM_EEV7	TIM1_CH3/TIM3_CH4/TIM8_CH3N	DFSDM1_DATIN1				PB1	D2	5
D1		HRTIM_EEV8		DFSDM1_CKIN1				PB2	D1	4
D0	LPTIM5_OUT		TIM15_CH2/TIM2_CH4/TIM5_CH4				ADC1_INP18/ADC2_INP18/DAC1_OUT1	PA3	D0	3
								PH0-OSC_IN (PH0)	REFCLK	26
									RESETB	27
									VBAT	21
									VBUS	22
									DM	19
									DP	18
									ID	23
LAN8742ai									LAN8742ai	
TXEN	LPTIM1_IN2							PG11	TXEN	16
TXD0	LPTIM1_OUT							PG13	TXD0	17
TXD1	LPTIM1_IN1							PG12	TXD1	18
RXD0		HRTIM_CHB1		DFSDM1_CKIN2	OPAMP1_VOUT		ADC1_INN4/ADC1_INP8/ADC2_INN4/ADC2_INP8	PC4	RXD0	8
RXD1		HRTIM_EEV1		DFSDM1_DATIN2	OPAMP1_VINM/OPAMP1_VINM0			PC5	RXD1	7
CRS_DV		HRTIM_CHC2	TIM14_CH1/TIM1_CH1N/TIM3_CH2/TIM8_CH1N		OPAMP1_VINM/OPAMP1_VINM0			PA7	CRS_DV	11
MDC				DFSDM1_CKIN4/ DFSDM1_DATIN0		COMP1_OUT	ADC1_INN11/ADC1_INP12/ADC2_INN11/ ADC2_INP12/ADC3_INN11/ADC3_INP12	PC1	MDC	13
MDIO	LPTIM4_OUT		TIM15_CH1/TIM2_CH3/TIM5_CH3				ADC1_INP15/ADC2_INP15	PA2	MDIO	12
								PJ15	nRST	15
nINT	LPTIM3_OUT		TIM15_CH1N/TIM2_CH2/TIM5_CH2				ADC1_INP14/ADC2_INP14	PA1	nINT	14
									XTAL1/CLKIN	5
									TXP	21
									TXN	20
									RXP	23
									RXN	22
									LED1	2
									LED2	3



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WARNING Total output current sunk by sum of all I/Os and control pins is 140 mA

WARNING Total output current sourced by sum of all I/Os and control pins is 140 mA

WARNING Output current sunk by any I/O and control pin is 20 mA

NOTE: CIPO/COPI have previously been referred to as MISO/MOSI

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ARDUINO PORTENTA H7

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USB3320C	FDCAN (can bus)	USB	MDIOS (ETHERNET IEEE RFC 802.3)	ETH	SWPMI	UART/USART	SDMMC (SPI)	QUAD-SPI	SPI	I2C/I2S		USB3320C	
NXT	FDCAN1_RX	USB-OTG-HS_ULPI-NXT								I2C2_SCL	PH4	NXT	2
DIR		USB-OTG-HS_ULPI-DIR									PI11	DIR	31
STP		USB-OTG-HS_ULPI-STP									PC0	STP	29
CLKOUT		USB-OTG-HS_ULPI-CK							SPI1_SCK/SPI6_SCK	I2S1_CK	PA5	CLKOUT	1
D7	FDCAN1_RX	USB-OTG-HS_ULPI-D7		ETH_PPS-OUT		UART5_RX			SPI1_COPI/SPI3_COPI /SPI6_COPI	I2C1_SMBA/I2C4_SMBA/ I2S1_SDO/I2S3_SDO	PB5	D7	13
D6		USB-OTG-HS_ULPI-D6/ USB-OTG-HS_VBUS	MDIOS_MDC	ETH_TXD1		UART5_TX/USART3_CTS /USART3_NSS			SPI2_SCK	I2S2_CK	PB13	D6	10
D5		USB-OTG-HS_ID/ USB-OTG-HS_ULPI-D5		ETH_TXD0		UART5_RX/USART3_CK			SPI2_NSS	I2C2_SMBA/I2S2_WS	PB12	D5	9
D4		USB-OTG-HS_ULPI-D4		ETH_TX-EN		USART3_RX				I2C2_SDA	PB11	D4	7
D3		USB-OTG-HS_ULPI-D3		ETH_RX-ER		USART3_TX			SPI2_SCK	I2C2_SCL/I2S2_CK	PB10	D3	6
D2	FDCAN2_RX	USB-OTG-HS_ULPI-D2		ETH_RXD3							PB1	D2	5
D1	FDCAN2_TX							QUADSPI_BK1-NCS	SPI3_COPI	I2S3_SDO	PB2	D1	4
D0		USB-OTG-HS_ULPI-D0		ETH_COL		USART2_RX					PA3	D0	3
											PH0-OSC_IN (PH0)	REFCLK	26
												RESETB	27
												VBAT	21
												VBUS	22
												DM	19
												DP	18
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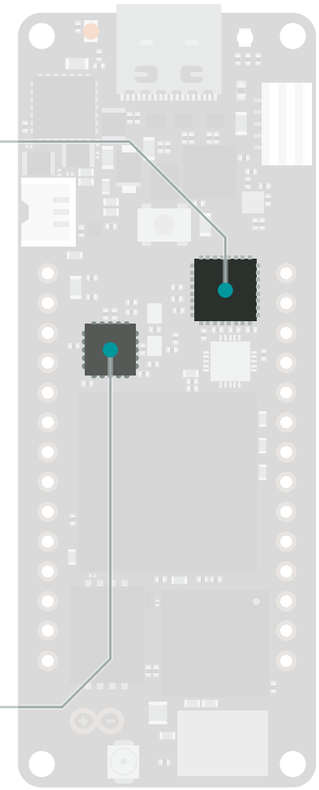
LAN8742ai										LAN8742ai	
TXEN	ETH_TX-EN			SDMMC2_D2			SPI1_SCK	I2S1_CK	PG11	TXEN	16
TXD0	ETH_TXD0		USART6_CTS/USART6_NSS				SPI6_SCK		PG13	TXD0	17
TXD1	ETH_TXD1		USART6_DE /USART6_RTS				SPI6_CIPO		PG12	TXD1	18
RXD0	ETH_RXD0	SWPMI1_RX						I2S1_MCK	PC4	RXD0	8
RXD1	ETH_RXD1			SDMMC1_D6/ SDMMC2_D6	QUADSPI_BK1-IO1				PC5	RXD1	7
CRS_DV	ETH_CRS-DV /ETH_RX-DV						SPI1_COPI/SPI6_COPI	I2S1_SDO	PA7	CRS_DV	11
MDC	ETH_MDC			SDMMC2_CK			SPI2_COPI	I2S2_SDO	PC1	MDC	13
MDIO	ETH_MDIO		USART2_TX						PA2	MDIO	12
									PJ15	nRST	15
nINT	ETH_REF-CLK /ETH_RX-CLK		UART4_RX/USART2_DE /USART2_RTS		QUADSPI_BK1-IO3				PA1	nINT	14
										XTAL1/CLKIN	5
										TXP	21
										TXN	20
										RXP	23
										RXN	22
										LED1	2
										LED2	3



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ARDUINO PORTENTA H7

STORE.ARDUINO.CC/PORTENTA-H7

USB3320C	SYS (clock)	RTC (real time clock)	DEBUG	FMC (flexible memory controller)	SPDIFRX (audio - microphone)	SAI (audio - interface)	CEC (video)	LTDC (video)	DCMI (video)		USB3320C	
NXT								LTDC_G4/LTDC_G5	DCMI_D4	PH4	NXT	2
DIR								LTDC_G6		PI11	DIR	31
STP				FMC_A17/FMC_ALE	SPDIFRX1_IN2	SAI2_FS-B		LTDC_R5		PC0	STP	29
CLKOUT				FMC_SDNE0				LTDC_R4		PA5	CLKOUT	1
D7				FMC_D3 /FMC_DA3					DCMI_D6	PB5	D7	13
D6	SYS_WKUP5		DEBUG_TRACED0	FMC_D14/FMC_DA14						PB13	D6	10
D5				FMC_D13/FMC_DA13						PB12	D5	9
D4				FMC_NE1				LTDC_G5		PB11	D4	7
D3				FMC_NWAIT				LTDC_G4		PB10	D3	6
D2								LTDC_G0/LTDC_R6	DCMI_D10	PB1	D2	5
D1		RTC-OUT_ALARM/RTC-OUT_CALIB				SAI1_D1/SAI1_SD-A/SAI4_D1/SAI4_SD-A	CEC		DCMI_D5	PB2	D1	4
D0				FMC_SDNWE				LTDC_B2/LTDC_B5		PA3	D0	3
REFCLK									DCMI_D1	PH0-OSC_IN (PH0)	REFCLK	26
											RESETB	27
											VBAT	21
											VBUS	22
											DM	19
											DP	18
											ID	23

LAN8742ai											LAN8742ai	
TXEN				FMC_D29				LTDC_B3		PG11	TXEN	16
TXD0				FMC_D30				LTDC_R0	DCMI_D8	PG13	TXD0	17
TXD1								LTDC_B1/LTDC_B4		PG12	TXD1	18
RXD0			DEBUG_TRACED1	FMC_NBL0					DCMI_D2	PC4	RXD0	8
RXD1				FMC_NBL1		SAI1_D3/SAI4_D			DCMI_D8	PC5	RXD1	7
CRS_DV				FMC_SDNE0					DCMI_D1	PA7	CRS_DV	11
MDC		RTC_TAMP3		FMC_A18	SPDIFRX1_IN3	SAI1_D1/SAI1_SD-A/SAI4_D1/SAI4_SD-A				PC1	MDC	13
MDIO	SYS_WKUP1					SAI2_SCK-B		LTDC_R1		PA2	MDIO	12
nRST								LTDC_B3		PJ15	nRST	15
nINT						SAI2_MCLK-B		LTDC_R2		PA1	nINT	14
											XTAL1/CLKIN	5
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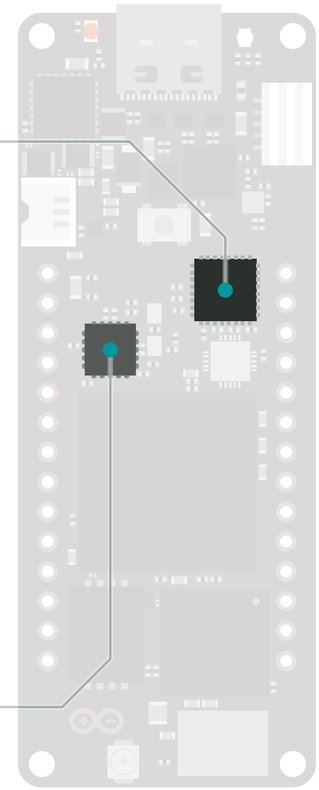

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